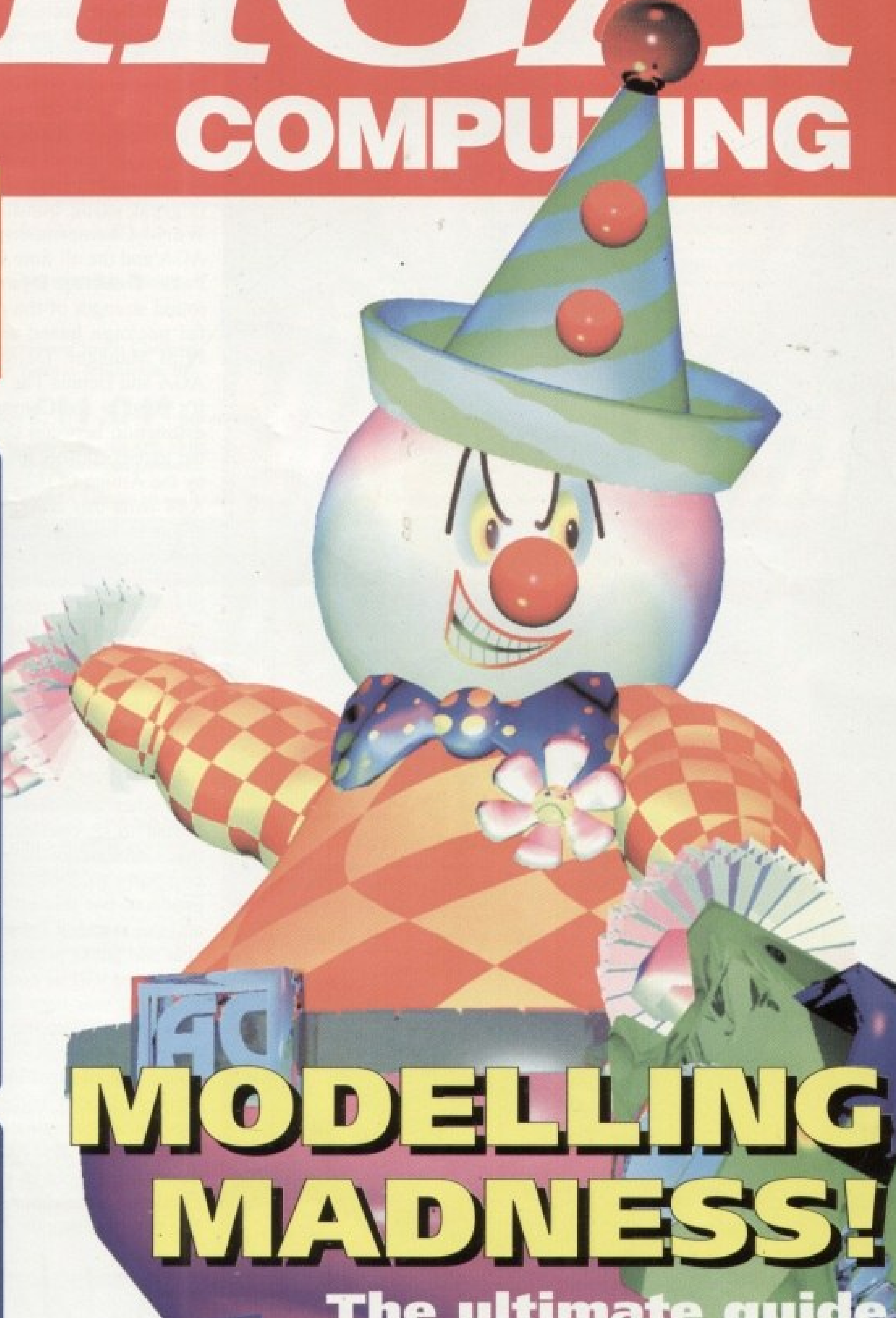
Europress Enterprise
Issue 66 ● November 1993 ● £3.99 Overseas price £4.25 ● Hfl 18.95

AMIGA COMPUTING



FREE!
Excellent 3D programming tool
WORTH £25

November 1993
AMIGA COMPUTING
AMOS 3D
Take your programs right into the third dimension with this complete and easy to operate programming tool for all Amos users
Working version of Amos also included so you can import and use your 3D models

November 1993
AMIGA COMPUTING
BAT DOG
Complete and addictive – it's the really hot canine caper
STICKIT replace those little yellow reminders with electronic ones! Requires WB2 or 3
AROACH the harmless Workbench hack that infests your screen with cockroaches Not WB 1.3
VIRUS CHECKER Zap those viruses with the latest version of John Veldthuis's utility
AMEKO-AGA an exclusive WB3 version of the ever popular Workbench cat

MODELLING MADNESS!
The ultimate guide to all things three dimensional



FREE!
16 page CD32 SUPPLEMENT INSIDE

The BBC Radio 1's
TV and Radio presenter



INDI DIRECT MAIL

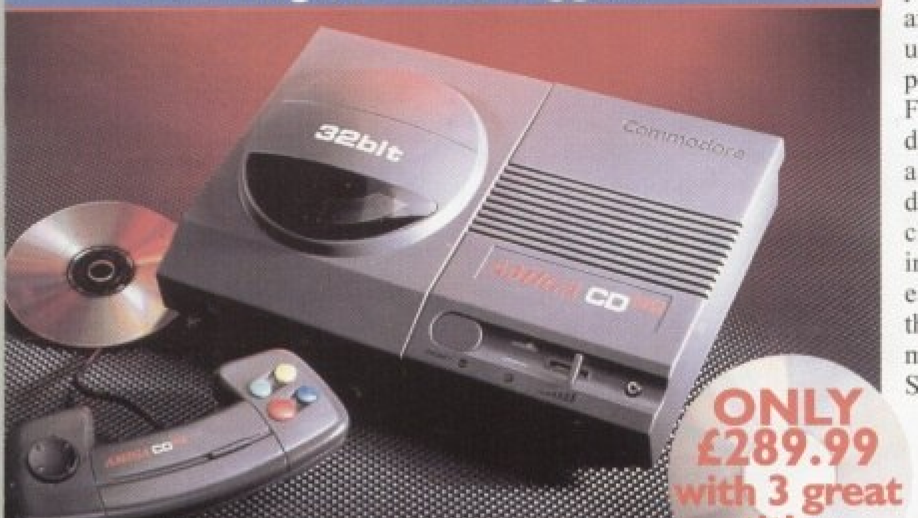
Proudly Presents
THE
JAKKI BRAMBLES COLUMN

Hi, It's been quite a month in the Commodore marketplace, no sooner had we all been told that Commodore had lost their shirt than we have been inundated with masses of good news.
First we have the launch of **two brand new Commodore Amiga 1200 packs** one aimed straight for games market the other firmly at the more mature purchaser. **The Chartbuster Pack** is great value bundled with Nigel Mansell's World Championship race simulator, Trolls AGA and the all time favourite Amiga Challenge Pack. **Desktop Dynamite** reinforces the all round strength of the A1200 with a very powerful package based around Wordworth AGA, Print Manager, Deluxe Paint IV AGA, Oscar AGA and Dennis The Menace AGA.
It's good to see Commodore create such a clear distinction between the Amiga 1200 market and the games console market. soon to be dominated by the Amiga CD32.
As I write this article the first of the CD32's are about to land in the UKwith a promised street date launch of the **first week in September.** The major news around this product is just how many of the softwaRe publishing houses are enthusiastically writing for it and of course that Commodore have decided to bundle 2 great software titles at launch.
Not to be outdone **INDI have added a third** so look foreward to receiving Oscar, Diggers and Lemmings when you take delivery of your New Amiga CD32.
The other item of news from Commodore does appear to be causing somE confusion. It is true that Commodore have appointed the giant **ICL** company to look after the warranty on their products but this only applies to Amiga CD32 and the Desktop Dynamite Pack. All other products and packs previously purchased or yet to be purchased will be covered by Wang.
Finally it was very sad to hear this week of the demise of Diamond Computer a well known advertiser in the Amiga Market. There is no doubt that the recession continues to cause the closure of many companies often without warning. Once again please be careful with your hard earned money and make certain that you follow the code printed in most magazines before you make that special purchase.
See you next month.

Jakki Brambles

AMIGA CD32

FREE SOFTWARE
Lemmings, Oscar, Diggers



The exterior may be sleek but lurking inside the Amiga CD32 is a technological wonder.
At it's heart is the mightily powerful 68EC020 processor from Motorola. This contains the 32 - bit technology which has made the Amiga 1200 a runaway success throughout Europe.
Alongside it is Commodore's unique custom AGA (Advanced Graphics Architecture) chipset - comprising three chips nicknamed Paula, Lisa and Alice.
Together they make Amiga CD32 and awesome powerhouse of high speed graphics and stunning sound capabilities.
In fact, the machine can display 256,000 colours on screen (compared to Sega's Mega CD which can only display 64) and has a total colour palette of 16.8 million colours.
Amiga CD32 also comes with a chunky 2 Meg of RAM (that's15 times more than Mega CD) and a double speed drive.

SPECIFICATIONS:

* 14 MHZ 68EC020 processor
* 2 Megs 32 - bit chip RAM
* 2 Joystick ports/controller ports
* S- video jack
* Composite video jack
* RF output Jack
* Stereo audio jacks
* Keyboard connector/ auxiliary connector
* Full expansion bus
* Headphone jack
* Headphone volume control
* External brick power supply
* Internal MPEG FMV expansion capability
* Multiple session disc capability

INDI MULTI MEDIA CLUB

A true 'One Stop Shop' for all members. On offer each month with an ever increasing product range , members can obtain software to cover every application including **Morphing, Rendering, Raytracing, Video** and a PD Library second to none. The Club also offers a very comprehensive range of videos including the **Cult Manga Titles, Music, Features and Special Interest**. There really is something to suit every ones taste. Membership costs only £10 and each member receives a quality gift on joining, even though there is absolutely no commitment to buy at any time. If you would like to be a part of this exciting club then call **Indi on 0543 419 999**

INDI IS A MEMBER OF THE DMA

As with most industries, the UK's personal computer industry has its share of cowboys operating in the mail order sector and at the receiving end a line up of despairing consumers who have suffered at their hands.
A personal computer is a sophisticated and expensive item and provided the purchaser is dealing with a reputable and accredited supplier, buying a computer by mail order can be a perfectly safe and cost effective exercise. The Direct Marketing Association (DMA) was set up in April 92 to set and maintain high standards for the sake of the industry and society at large, and to ensure that we can continue to regulate our own activities on the basis of proper professional responsibility.
Membership of the DMA is not conferred lightly - it is a privilege which entails responsibilities, to the consumer as well as to the industry. The foundation for this must be good practice. DMA members are required to abide by the highest standards as laid down in the DMA's code, enforced on members by The Authority of the DMA a separate body with an independent Chairman, and which is an assurance of vigorous self - regulation and professional responsibility.
DMA members also agree, as a condition of membership, to abide by The British Code of Advertising Practice and The British Code of Sales Promotion Practice: to apply the Mailing Preference Service file when appropriate: and to subscribe to the Advertising Standards Board of Finance (ASBOF) and to the Mailing Standards Levy as applicable.
The DMA symbol can only be used by members. Printed on stationary, advertising and other promotional material it demonstrates that these companies conform to the Association's high standards and are subject to the DMA's Code of Practice, thus enhancing the companies credibility with customers, suppliers and of greatest importance, the consumer.
Since the symbol was introduced last June, it has become synonymous with quality , professionalism and and responsibility. While it cannot be shown in any way which will become a sign of best industry practice and of strict adherence to DMA codes of conduct. The symbol represents authority for members and reassurance for consumers. It has been a high valued mark of confidence signifying to the consumer the truly professional edge of the industry.

Alison Slan
Alison Slan
(Director of Public Relations,DMA)

*PAY 10% NOW AND NOTHING MORE FOR 3 MONTHS
*ORDERS OVER £200 SUBJECT TO STATUS

INDI DIRECT MAIL

CUSTOMER CHARTER

INDI Direct Mail is original and very exciting. Before you buy mail order you must first be confident that you will receive the product you've ordered and that the supplier still be there in the future, should you need them.

A mail order purchase from INDI is a safe and secure decision, and here's why.

INDI is a wholly owned subsidiary of a public company now in it's tenth year of trading and specialising in the supply of computer products.

With a turnover approaching £30 million per annum, we have the resources and the purchasing power to offer you the best deals, deliver them next day nationwide and always be around when you need us.

The INDI sales team have been trained to

SALES AND SUPPORT

take your order with the utmost care and efficiency. All stock offered for sale is held in stock, centrally at our group ware house complex and is available for next day delivery, direct to your home or business. If at any time we are out of stock your money will not be banked until the product is available (a point worth checking should you be tempted to purchase elsewhere)

General information regarding product is available from our sales team, however technical support is always on hand should you need assistance.

All prices quoted are inclusive of VAT.

INDI TELESALES
TEL 0543 419999 FAX 0543 418079
9am - 7pm Monday to Friday
9.30am - 4.30pm Saturday.

CREDIT FACILITIES

INDI are now able to offer competitive credit facilities on all orders over £200. All credit facilities are subject to status and applicants must be over the age of 18.

If you would like a quote simply call our our sales line where acceptance can normally be notified within the hour. We are also able to offer Credit Insurance to cover repayments in the event of sickness or unemployment.

AMOUNT* OF CREDIT	12 MONTHS		24 MONTHS		36 MONTHS	
	MONTHLY PYMNT'S	TOTAL PAYABLE	MONTHLY PYMNTS	TOTAL PAYABLE	MONTHLY PAYABLE	TOTAL PYMNTS
200	£22.00	£264.00	£12.00	£298.32	£9.31	£335.63
500	£54.99	£659.88	£31.06	£745.44	£23.27	£837.72
1000	£109.98	£1319.76	£62.13	£1491.12	£46.54	£1675.44

APR 29.9% WRITTEN QUOTATIONS AVAILABLE ON REQUEST
*After deposit paid

AFTER SALES AND SPECIALIST SERVICE

All products are guaranteed for 12 months. Some products carry a 12 months at home service and repair guarantee (where indicated). In the unlikely event that any product purchased from INDI arrives at your home faulty, we will collect from your home and replace the product completely free of charge.

As part of our policy of continual product development and refinement, we reserve the right to change specifications of products advertised. Please confirm current specifications at the time of ordering.

Prices are valid for month of publication only.

AMIGA A1200



NEW AMIGA PACK

AMIGA 1200 CHARTBUSTER PACK

AMIGA 1200 SD
- Nigel Mansells World Championship Racing
- Trolls
- Amiga Challenge Pack

NEW AMIGA PACK

PACK INCLUDES: * International Sports Challenge * Paradroid 90 * Cool Croc Twins * Indianapolis 500

£289.99 or from **£11.04*** per month

*(Credit price based on 36 monthly payments APR 29.8%. Total repayment £397.92 and 90 day deferred payments.

NEW DESKTOP DYNAMITE PACK

This great new pack from Commodore must have at least £300 worth of software bundled with it.

A1200 STANDARD FEATURES.
* 68020 Processor * PCMCIA Slot * 2MB Chip RAM * 3.5" Internal Drive * AA Chipset * Built in TV modulator * Alpha numeric keypad. * 12 Months at home maintenance.

FREE
* Wordworth AGA * Print Manager * Deluxe Paint IV AGA * Oscar AGA * Dennis The Menace AGA

INDI PRICE

£339.99 or from **£12.95*** per month

*(Credit price based on 36 monthly payments APR 29.8%. Total repayment £466.20 and 90 day deferred payments.

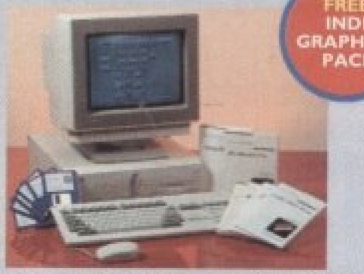
NEW LOW PRICE HARD DRIVE OPTIONS

A1200 80 MEG HD	INDI PRICE ADD £200.00
A1200 120 MEG HD	INDI PRICE ADD £230.00

OFFICIAL A1200 HD SYSTEMS
The Amiga 1200 supplied by Indi Direct Mail now includes the official (legal) Commodore installation disk and hard drive utility manual. Indi are proud to be an official supplier of Amiga 1200 Hard Drive systems, that include the official software, documentation and on - site warranty.

80 Mb and 120 Mb Hard Disk upgrades available on any A1200. Upgrade does not invalidate your Wang or ICL warranty on A1200 and Hard Disks. Phone for a quote

AMIGA A4000



FREE INDI GRAPHICS PACK

It's here - The new Amiga 4000/030

The NEW Amiga 4000/030 features a EC68030 processor running at an incredible 25Mhz, and upgradable at a later date to a faster processor. The 4000/030 has a powerful 2 Mb of 32 - bit RAM expandable to 18 Mb using industry standard 32 - bit Simms module. In line with the Amiga flagship 4000/040 the 4000/030 features the new AGA graphics chipset, giving you a massive pallet of 16.8 million colours. A range of hard drive options are available from 80 - 240 Mb and includes a SCSI option.

4000/030 80 Mb HD INDI PRICE £899.99
Other Drive Options
4000/030 120 Mb HD INDI PRICE £959.99
4000/030 240 Mb HD (exclusive to INDI)
Phone for price.
4000/030 120 Mb SCSI HD (exclusive to INDI)
Phone for price

A full range of approved upgrades are available for the 4000/030, including additional memory modules, hard drives, PC bridge boards, FPU's (68881 &68882) and the 24 - bit Opal Vision graphics and video system

INDI GRAPHICS PACK (FREE WITH ALL A4000'S)
PD C - light, Graphic Utilities, Ray Tracing and Rendering package pre loaded on to your Hard Drive.

NEW MONITOR RANGE

THE NEW DUAL SYNC1942 Monitors have been specially designed for the New Amiga 1200 and 4000 computers. Both monitors feature built - in stereo speakers.

INDI PRICE

1940 Monitor £269.99

14 inch screen size - 0.39 mm dot matrix

INDI PRICE

1942 Monitor £369.99

14 inch screen size - 0.28 mm dot matrix



ZAPSAC AND T - SHIRT
INDI PRICE £17.99



Parnet Adaptor for CDTV

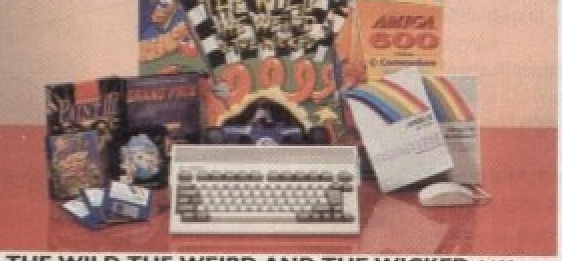
Connect a CDTV player to any Amiga, and access the world of CD - ROM software. The Parnet interface and software will allow the Amiga CDTV to be used as a CD - ROM drive withe any Amiga and will give any Amiga owner access to the vast range of CDTV software currently available.

The CDTV player offers excellent value for money when compared with a standard CD - ROM drive and interface. Most CD - ROM drives will set you back over £400 while CDTV will cost you less than £300 and will play audio CD's in addition to CD - ROM / CDTV disks your Amiga, interface cable and PD disk with driver software for your CDTV player. **(The Parnet adapter can be used to link any Amigas together)**

INDI PRICE £39.99

CDTV MULTI MEDIA + PARNET.
INDI PRICE £289.99

AMIGA A600 PRICE CRASH



THE WILD THE WEIRD AND THE WICKED A600 is an ideal starter pack containing a considered mix of software, making the most of the Amigas capabilities.

PACK CONTAINS:
- A600 Single Drive
- Built in TV Modulator
- 1 Mb Memory
- Pushover: Grandprix
- Silly Putty: Deluxe Paint III
- Mouse and Manuals

NEW LOW LOW PRICES
~~£215.99~~
£199.99

A600 - SD A single drive Amiga for those of you requiring a basic A600 at a very competitive price.
PACK INCLUDES: A600 single drive, built in TV modulator, 1 Mb memory. 12 Months at home service

INDI PRICE ~~£189.99~~ **£169.99**

A600 EPIC PACK (40 Mb HD) PACK INCLUDES:
A600 Hard Disks (40Mb) * 1 Mb Memory * Epic * Rome * Myth * Trivial Pursuit * Amiga Text * Deluxe Paint III * 12 Months at home service.

INDI PRICE ~~£379.99~~ **£279.99**

INDI A600 ACCESSORY PACK
* Microswitched Joystick * Lockable Disk Box * Disk Wallet * 10 Blank Disks * Kick Off 2 * Pipemania * Space Ace * Populous * Zapsac A600 Carry Case * Zappo T - Shirt.

INDI PRICE ~~WORTH £79.99~~ **£26.99**

TEL: 0543 419 999 FAX: 0543 418 079

CREDIT AVAILABLE ON 6,12, 18, 24, 36 MONTHS.

WHY NOT RING NOW FOR A QUOTE. SAME DAY RESPONSE.

AMIGA PERIPHERALS & ACCESSORIES

NEW FROM MICROBOTICS!!!. M1230XA ACCELERATOR LAUNCH!!

Microbotics beats the competition in price/ performance/ features and configurations. INDI is very pleased to announce the availability of the new 68030 accelerator product for the A1200: the microbotics M1230 XA (call it the "XA" for short). 50 Mhz as standard! Huge 128 MB memory design is standard (the biggest memory space in any A1200 peripheral) just look at these specifications and prices!

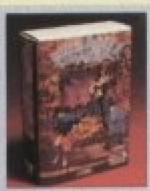
M1230 XA W/40 MHZ EC 030 OMB **INDI PRICE £239.99**
M1230 XA W/40 MHZ EC 030 4MB **INDI PRICE £369.99**
M1230 XA W/40 MHZ EC 030 8MB **INDI PRICE £599.99**
M1230 XA W/50 MHZ MMU 030 0MB **INDI PRICE £349.99**
M1230 XA W/50 MHZ MMU 030 4MB **INDI PRICE £479.99**
M1230 XA W/50 MHZ MMU 030 8MB **INDI PRICE 6711.99**

MBX1200.

The original and best floating point unit and memory upgrade for the Amiga A1200. Available with 0,4 or 8 MB of 32 bit Fast RAM and a choice of floating point units.Now complete with real time clock (RTC)

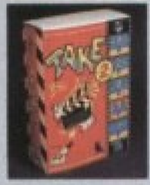
MBX1200Z 68881 14 MHZ 0MB **INDI PRICE £109.99**
MBX1200Z 68881 14 MHZ 4MB **INDI PRICE £249.99**
MBX1200Z 68881 14 MHZ 8MB **INDI PRICE £449.99**
MBX1200Z 68882 25 MHZ 0MB **INDI PRICE £169.99**
MBX1200Z 68882 25 MHZ 4MB **INDI PRICE £309.99**
MBX1200Z 68882 25 MHZ 8MB **INDI PRICE £519.99**
MBX1200Z 68882 50 MHZ 0 MB **INDI PRICE £249.14**
MBX1200Z 68882 50 MHZ 4MB **INDI PRICE £379.14**
MBX1200Z 68882 50 MHZ 8MB **INDI PRICE £579.99**
68882 FPU UPGRADE 50 MHZ **INDI PRICE £169.99**

AUDIO VISUAL



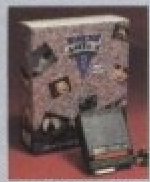
MEGAMIX. Low cost, hi spec digital effects cartridge plugs into the printer port of the Amiga. Allows stereo sampling from almost any musical source.

INDI PRICE £29.99



TAKE 2. Animation package is a must foe computer artists and enthusiasts of all ages. As used in Rolf Harris Cartoon Club.

INDI PRICE £37.99

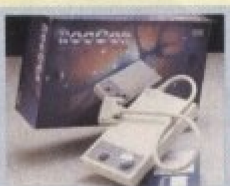


VIDI AMIGA 12. The ultimate low cost colour digitiser for the Amiga. "The best value full colour digitiser on the market" AMIGA FORMAT.

INDI PRICE £75.99

ROMBO VIDI AMIGA 24(RT). For the more serious user, this 24 - bit version will again capture from from any video source with true photo realistic images! A staggering 16.7 million colours can be utilised with incredible results. Full AGA chipset support.

INDI PRICE £239.99



ROCTEC ROCGEN PLUS.
As above but with extra features such as tinting and signal inversion. Allows for real time editing of graphics. Compatible with all Amigas.

INDI PRICE £129.99

ROCTEC ROCKEY.
The ultimate accessory for Amiga / Video fans. Separate RGB controls to chroma key on any colour.

INDI PRICE£249.99

ROMBO VIDI AMIGA 12 (RT). Based on the best selling Vidi Amiga 12. This all new version offers real time colour capture from any video source. Full AGA chipset support as standard for all A1200 / 4000 users.

INDI PRICE £139.99

DISK DRIVES



ZAPPO EXTERNAL FLOPPY
You've seen all the reviews on this popular and affordable second Amiga drive. Compatible with all Amigas.

INDI PRICE £59.99

Quality: 9 out of10. Exceptional value for money. AMIGA COMPUTING JAN 93

AMIGA PERIPHERALS



2MB SMARTCARD. The original and still the only fully PCMCIA compatible memory card for A600/ A1200.Comes with lifetime guarantee. Beware of cheap imitations.
INDI PRICE £129.99
4MB SMARTCARD. Same as above but maximum 4MB.
INDI PRICE £199.99

ZAPPO 601
Trapdoor upgrade for the A600, 1Mb with RTC **INDI PRICE £49.99**
ZAPPO 601 INC As above only 512K, no clock **INDI PRICE £29.99**



1084ST MONITOR.



Commodores original and best selling colour stereo monitor.
Now includes swivel and tilt stand for total ease of use.

INDI PRICE £189.99
(£179.99 if purchased with A600 / A1200 / A1500)

MORPH PLUS

You've seen Micheal Jackson's video, you've seen the television adver using the latest techniques in morphing, now now you can create the same results but at a fraction of the cost. Morph Plus is the latest an the ultimate in this technology. Whether you are a professional artis or just want to experiment at home Morph Plus is a must.

INDI PRICE £129.99





DELUXE PAINT IV AGA

Combines powerful tools with an intuitive interface so both professionals and beginners alike can get superb results quickly. New enhancements to the software include the ability to paint and animat in 4696 colours in the Amiga's HAM (Hold and Modify)mode. New animation features also include metamorphosis allowing you to chang one image into another. You determine the number of frames and DPaint IV does the rest.

INDI PRICE £63.99

ART DEPARTMENT PROFESSIONAL

The ultimate in image processing providing many key benefits to Ami users working with pictures.With ADPro you can read, write and co vert between most common image file formats with unmatched flexibility. Full support for JPEG image makes it possible to maintain an image library in full 24 - bit colour without needing massive hard driv storage. Typically a 600 Kb image can be compressed down to 40 Kb!

INDI PRICE £139.99

REAL 3D V2

Is a full featured 3D animation, modelling amd rendering program. With Real 3D V2 you can produce high quality images and animation of three dimensional models with an astonding level of realism. Imagin creating an animation that shows a handfull of balls bounce down a flight of stairs to the bottom. Gravity, colliision, deflection and the ela ticity of the balls are all automatically calculated by the program!



INDI PRICE£299.99

SCALA Multimedia 200 (MM200)

Is the ultimate on professional video titling. The eminent design of typefaces, the unlimited choice of typographical details, the high resolution and the more than 80 exciting wipes result in video captioning of exquisite quality. No wonder that Scala is used by leading television stations around the world.

INDI PRICE £399.99 also available

SCALA Pro V1.3

INDI PRICE £169.99

VIDEO DIRECTOR

With Video Director, anyone with an Amiga, a camcorder and a VCR can quickly and easily catalogue and edit the best moments from their video tapes. Video Director is extremely easy to use, you can actually control your camcorder and VCR from your Amiga screen . Video Director comes with everything you need to get started. The hardware to control your camcorder* and VCR is included

INDI PRICE £119.99

*Camcorder must have a LANC or Control L compatible port

OPAL VISION



NEW FOR OCTOBER RELEASE!

The already acclaimed Opalvision Board takes three further leaps into the future with the official launch of the Opalvision modules. With truly awesome capabilities the Amiga can now become the most professional 24 - bit video graphics power station ever!

The NEW OPAL VISION system(Rev.2)

The amazing Opalvision 24 - bit graphics board and software suite has been updated and is now even better value for money.

The software suite now includes:

Opal Paint V2.0 - Now includes full magic wand implementation and Alpha Channel that allows photo compositing with selectable levels on a pixel by pixel basis.The new Chrominance effect allows absolute, real time control of image contrast, brilliance and re - mapping of colours.

Opal AnimMATE V2.0 - ofering real time play back of animations created by ray tracers, landscape generators, morphers and all other 24 - Bit software.

Opal Hotkey V2.0 - Display OpalVision graphics anytime with key combinations.

Opal Presents - Comprehensive, icon - driven presentation package

Imagine V2.0 Imagine 3D is the most popular 3D rendering software, that now supports OpalVision.This is a full version that would cost £300 if purchaed separately.

"Quite simply, it's a spectacular product - Amiga Computing

"Undoubtedly the finest, most professional paint program to arrive on the Amiga" - Amiga Format

"Professonal quality at this Price can't be turned away" - Amiga User International

"The verdict was unanimous - brilliant" - Amiga Shoppe

INDI PRICE £599.99

PACK INCLUDES IMAGINE V2.0

Professional software is imported and sometimes subject to delay. Confirm delivery at time of order.

TEL: 0543 419 999 FAX: 0543 418 079

TERMS AVAILABLE OVER 6, 12, 24, & 36 MONTHS SUBJECT TO STATUS.

WHY NOT RING FOR A QUOTE. SAMEDAY RESPONSE. (SEE EXAMPLE)

Panasonic *Quiet* *Colour Printing*

We researched the colour printer market at great depth to find a colour printer good enough to cope with Amiga's powerful output, yet at an affordable price.
We found the perfect printer in the KX - P2180 and KX - P2123 quiet printers.
We then considered that if you were going to buy a Panasonic printer you would probably need a quality word processing package to use with it. We found that too, with 'Wordworth' yet at a retail price of £129.99 we thought that might be a little too expensive on top of your printer purchase! So together with Panasonic we decided to give a copy of 'Wordworth' free with every Panasonic printer. How's that for added value?

Panasonic KX - P2180



***WORDWORTH AGA COMPLETELY FREE!**
WITH PANASONIC QUIET PRINTERS. The writers choice. The ultimate word processor for AMIGA computers. Wordworth is undoubtedly the ultimate word / document processor for the full range of AMIGA computers. The graphical nature of WORDWORTH makes producing documents faster and easier, with the enhanced printing fonts (including full Panasonic KX - P2180 and KX - P2123 colour printing support), Collins spell checker and thesaurus, no other word processor comes close. "Without doubt this is one of the best document processors for the AMIGA, Today" (Amiga Format)
NORMAL RRP £129.99 inc. VAT

The new Panasonic KX - P2180 9 -pin quiet printer. Produces crisp clear text in mono or in 7 glorious colours with new quiet technology. THe new KX - P2180 is typically 15dBa quieter in operation, than the competition.

INDI PRICE £169.99

- **Fast Printing** Speeds 192 CPS NLQ
- **Colour Printing** 7 colour palette (blue, red, green, yellow, violet, magenta,black)
- **Quiet printing** Super quiet 45 - 48 dBa sound level (most matrix printers are typically in excess of 60 dBa)
- **6 Resident Fonts** Over 6,100 type styles using Courier Prestige, Bold PS, Roman, Script and Sans Serif Fonts.
- **3 Paper Paths** Paper handling from bottom, top and rear for total flexibility
- **1 Year Warranty** for total peace of mind

Panasonic KX - P2123



The new high performance Panasonic KX - P2123 24 pin. Quiet colour printer offers leading edge quiet printing technology at an affordable price

INDI PRICE £219.99

- **Fast Printing Speeds** 192 CPS draft, 64 CPS LQ and 32 SLQ.
- **Colour Printing** 7 colour palette (blue, red, green, yellow, violet, magenta, black)
- **Quiet Printing** Super quiet 43.5 - 46 dBa sound level (most matrix printers are typically in excess of 60 dBa)
- **7 Resident Fonts** Over 152,000 type styles using Super LQ, Courier Prestige, Bold PS, Roman, Script, and Sans Serif Fonts.
- **24PIN Diamond** Printhead High performance and high quality output
- **1 Year Warranty** for total peace of mind.

Panasonic LASER PRINTER

KX - P4410 LASER PRINTER





WORDWORTH AGA COMPLETELY FREE WITH PANASONIC LASER PRINTERS. The writers choice. The ultimate word processor for AMIGA computers NORMAL RRP £129.99 inc VAT

KX - P4430 LASER PRINTER



Once again INDI have joined together with Panasonic to offer all Amiga owners the most outstanding Laser Printer offer ever. We are now able to offer high quality, professional laser printing at affordable prices. We are also giving away a copy of Wordworth with every Panasonic Laser Printer purchased (RRP £129.99). Whether you are looking for a laser printer to handle word processing, DTP, presentation or complex graphic applications - the Panasonic range offers you the power to meet your requirements.

KXP - 4410

- 5 pages per minute
- 28 resident fonts
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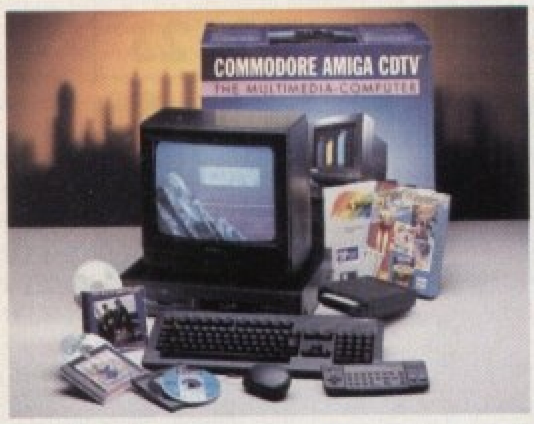
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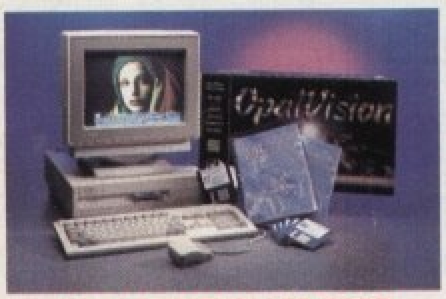
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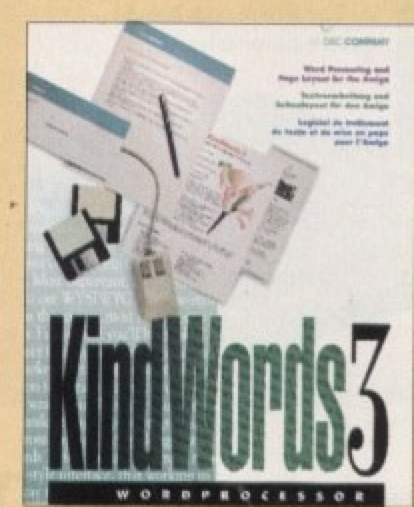
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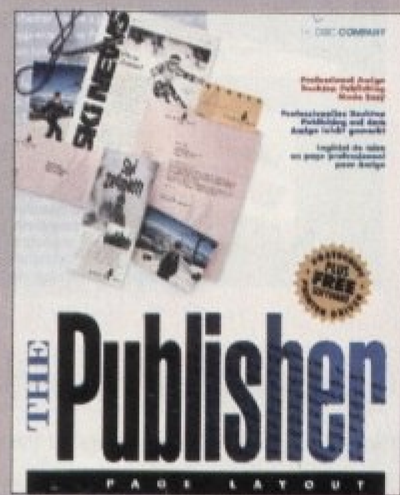
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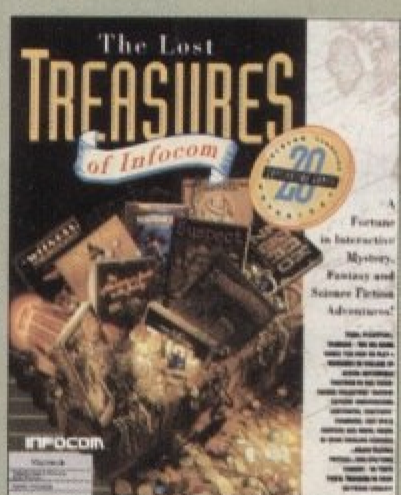


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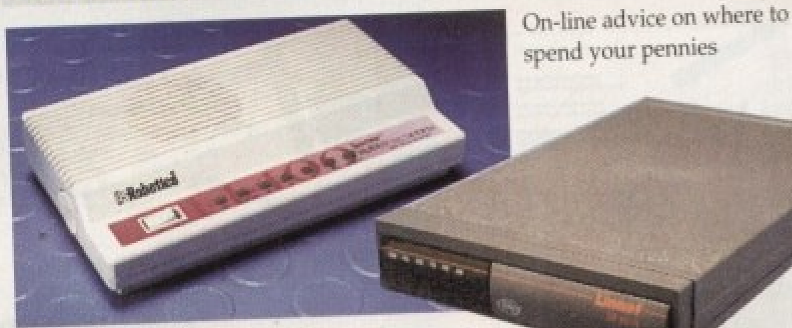
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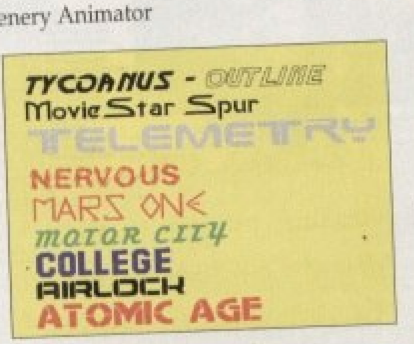
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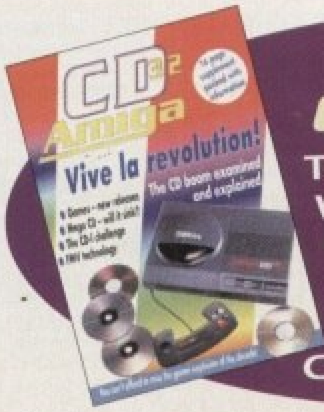
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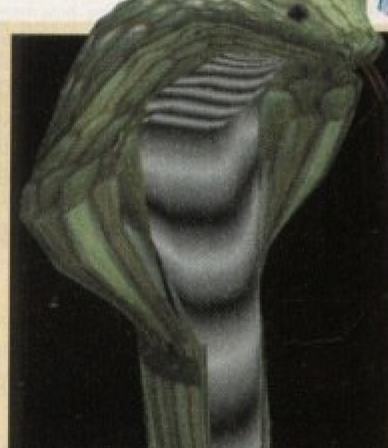
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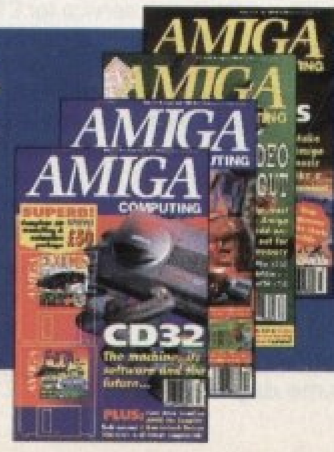






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NEWS

by John Butters

CBM make £7m Amiga push

A £7 MILLION advertising and promotion campaign aimed at ensuring continued success for the Amiga has just been unveiled by Commodore.

It comes at a critical time for the manufacturer – after a year of heavy cash losses and recent restructuring of the firm across the world – and alongside massive industry support.

More than 40 CD32 games titles are planned for launch between now and Christmas, with James Pond 2 and 3, Jurassic Park, Pinball Fantasies and Sensible Soccer among the first.

Two discs will be bundled with the player, and although Commodore refused to confirm their details, a reliable source told *Amiga Computing* they will be Diggers and Oscar.

But according to Commodore the games packed with the machine will be changed frequently to enable several software publishers to have similar marketing opportunities.

The firm's autumn campaign will centre on the new console, and will target European satellite and national television and radio, newspapers and top consumer magazines.

The player has already been featured regularly on children's TV shows and competitions in several high circulation newspapers have highlighted its advanced technology. Television advertising due to start in the next few weeks will use an android as a leading character who plays but cannot beat a console game.

The creature will also be featured on Commodore's show stands and in other merchandise being made on behalf of the manufacturer.

Press advertising is planned in teenage magazines, national newspaper and specialist computer publications, with some of the ads pushing computers in the range.

"Amiga CD32 is a landmark machine," claimed joint Commodore boss David Pleasance. "Everybody's talking about it now – weeks before its launch. With this campaign, we're giving it the sort of heavyweight backing to turn curiosity into sales. I'm certain Amiga CD32 will be the UK's premier consumer product this Christmas."



Pleasance: Giving CD32 heavyweight backing

ICL to fix Amiga snags

AMIGA warranty repairs are soon to be handled by computer giant ICL under a multi-million pound deal just signed between the firm and Commodore.

Service and maintenance will include home visits from ICL engineers and, say Commodore, a level of service and support normally available only to blue chip firms.

Commodore's Colin Proudfoot: "We wanted to find a way to combine our strengths – innovative technology, sales and marketing – with the best logistics management available.

"We believe ICL is the best and its service and logistics infrastructure will give customers the best possible back-up".

A Wang spokesperson said the company had been invited to tender for the work but were not in a position to offer manufacturing and distribution needed by Commodore.

The firm – who were criticised by Amiga owners for delays in attending to faulty computers last Christmas – will continue to provide after sales service to existing owners.



It's a deal: Colin Proudfoot, Commodore's join md (left) gives the Amiga warranty to David Palk, ICL's general manager

Software mix for new bundle

AN A1200 bundle featuring a selection of games and productivity software worth £310 will hit the streets before autumn's peak selling period, Commodore have confirmed.

The £349 Desktop Dynamite pack will come with programs developed to take advantage of the computer's graphics capability, including two of the latest games.

Dennis the Menace and Oscar will accompany home productivity software Wordworth v2, Print Manager and Deluxe Paint 4 AGA.

"We decided that because the Amiga 1200 is really a mean piece of hardware we were not going to major on games per se," said joint Commodore boss David Pleasance.

"We wanted to include software which somebody – whether they were buying for the first time or upgrading – would find a valuable piece of additional software."

Desktop Dynamite will replace all existing packs, including the £299 standalone A1200.



A1200: Now packed with mixed software

News Briefs

Body building

A KIT containing add-ons needed to build the CD32 into an Amiga computer will be available next year, Commodore have just confirmed.

The pack will include a keyboard, mouse and floppy disk drive. Commodore said fluctuating currency exchange rates meant they were unable to reveal price details.

Animation training

AN Amiga computer animation and graphics training course will be held by London-based Connections (081-741 1766) in November. The two-day event will cost between £60 and £90.

Performance boost

HYPERCACHE Professional is a software-based accelerator which is claimed to offer huge performance increases on hard and floppy disks.

Among the functions where extra speed can be appreciated are loading, directory operations and Workbench windows open and reopen.

The £46.95 package is being sold in Britain by Meridian Software (081-543 3500). More details can be found on page 161.

CD32 video promise

CD32 will have full motion video capability within the next few weeks, Commodore's joint general manager David Pleasance promised recently.

It will be aimed mainly at the music video market and enable up to 70 minutes of video footage to be played from compact disc.

Pleasance said that the FMV module accompanied with an up-to-date video disc will sell for around £229, and is likely to be sold in a bundle with the player giving buyers a cash saving.

Bugs fixed

A BUG fix for Bars & Pipes Professional is now available for $9.50 from Blue Ribbon Soundworks' US office. The firm are at Venture Center, 1605 Chantilly, Suite 200, Atlanta GA30324.

Panasonic cut printer noise

PANASONIC have extended their QuietPrinter range with the KX-P2023, a narrow carriage 24-pin dot matrix printers which uses latest sound reduction technology.

Functions can be controlled from the printer's front panel or directly from the Amiga, with options including enhancement adjustments, margins, form feed and tear off.



KX-P2023: Panasonic cut printing noise

The KX-P2023 prints in draft at speeds up to 240 characters per second and at 80cps in four letter quality fonts; Courier, Prestige, Bold PS and Script.

The £240 machine comes with 14K of memory, with 32K extra available as an option, and Epson LQ and IBM Proprinter X24E emulations. It is supplied with IBM PC software but buyers can receive an Amiga driver by telephoning Panasonic on 0800 444220.

Budget power genlock arrives



Genlock: Hama launch hi-spec device at £299

A SOFTWARE-independent genlock due for imminent release soon by Hama (0256 708110) is claimed to be ideal for hi-band and composite video signals.

The £299 Genlock 292 can feed Amiga signals, video signals, mixed Amiga and video signals or key inverted mixed signals into a video recorder with fade in or out.

And red, green and blue processing of the Amiga signal is possible by rotating control knobs on the device, which has a bandwidth of 10MHz.

Toaster will slay a Cray

ANIMATION will take less time than ever before when US-based Newtek's Screamer 3D rendering engine is launched towards the end of this year.

That's the claim from the developer, who say the device's four RISC processors will enable a Video Toaster system to deliver twice the 3D rendering power of a Cray 1 super computer.

It will operate at over 600 MIPS and by running each processor at 150MHz with both internal and external caches the Screamer will reach incredible speeds.

Already Newtek's Video Toaster and Lightwave 3D animation system have generated 3D effects for television shows in the States, including Steven Spielberg's SeaQuest DSV.

Screamer will cost US$9,995 and requires a Video Toaster workstation, which is for the time being only available for NTSC displays.

Atomox saves disk space

ATOMOX Data Packer is a new data compression utility written for Amiga owners who need to save disk space.

Its graphical interface enables users to load, pack and save files while a special extension will carry out similar functions within AMOS Professional.

The program's makers, Infinity Software, claim Atomix gives average space saving of more than 75 per cent. Cost, £6.99 from Agamic Computers (081-542 7662).

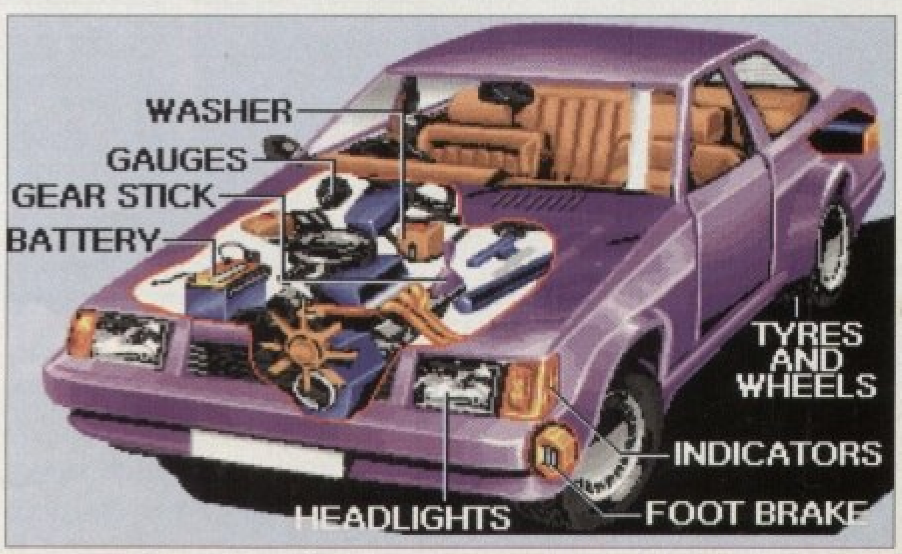
Optonica make non-game CD title

ONE of the first non-game titles for the Amiga CD32 will be an encyclopaedia of everyday technology, Leicester-based Optonica (0455 558282) have just announced.

Insight: Technology will cover everything from the ball point pen to the space shuttle, with more than 260 items explained with the help of graphics and motion video.

The Insight range will be increased further later this year with guides to Dinosaurs and the Living Body, while the firm are also due to launch a CD32 authoring system.

Interplay is claimed to be a non-technical system aimed at creative producers, and has already been used to develop several programs.



Technology: First non-game CD32 title

DIARY DATES

17 October 1993
Spotlight Amiga
Gasteiner Technologies
(081-885 5098)
Venue: Novotel Hotel, Hammersmith
A mini-show aimed at giving Amiga enthusiasts the chance to view and buy Amigas and products

11 to 14 November 1993
Future Entertainment Show
(0225 442244)
Venue: Olympia, London
A multi-format computer and console show. Tickets must be bought in advance on 051-356 5085.

13 November 1993
All Micro Show 7
Organiser: Sharward Service
(0473 272002)
Venue: Bingley Hall, Staffs
Last year's event saw 60 stands, some with Amiga products

19 to 21 November 1993
International Computer Show
Organiser: Westminster Exhibitions
(0222 512128)
Venue: Wembley, London
Discounted software and hardware plus product releases.

12 to 15 January 1994
BETT '94
Organiser: EMAP International
(071-404 4844)
Venue: Olympia, London
Britain's leading IT exhibiton for the education market

OVERSEAS

23 to 25 October 1994
Amiga '93 Atacom
Organiser: Atacom
(010 33 1 64 34 03 42)
Venue: Paris, France
A range of Amiga exhibitors and developers including Commodore

● If your company is organising a show relevant to the Amiga and it's not listed, let us know so we can include the information in the diary.

Picture support for new Superbase

THE next generation of database Superbase Personal is due for release on the Amiga soon, its British distributors Meridian Software have announced.

Sbase Personal 4 is compatible with the latest Amiga operating system and graphics and is said to offer a complete data management system for small business and personal needs.

It is completely different from earlier releases of the package and Meridian describe it as a cut-down version of the £299 Superbase Professional.

A video cassette recorder-like interface enables users to select fast forward or rewind easily , get the first, last, or next record and start or pause an index query of the filter operation.

The program supports sound files, IFF images, EPS clipart and text and number files, which can be stored and organised including a facility to create a picture/data library.

Form letters and other mailshot material, personalised letters and mailing labels printed and reports can be put together from linked databases.

It will work on any Amiga and cost £149.95. Meridian can be telephoned on 081-543 3500, while existing users looking to upgrade should contact US-based Oxxi on 0101 213 427 1227.

AmiTek expand Amiga memory

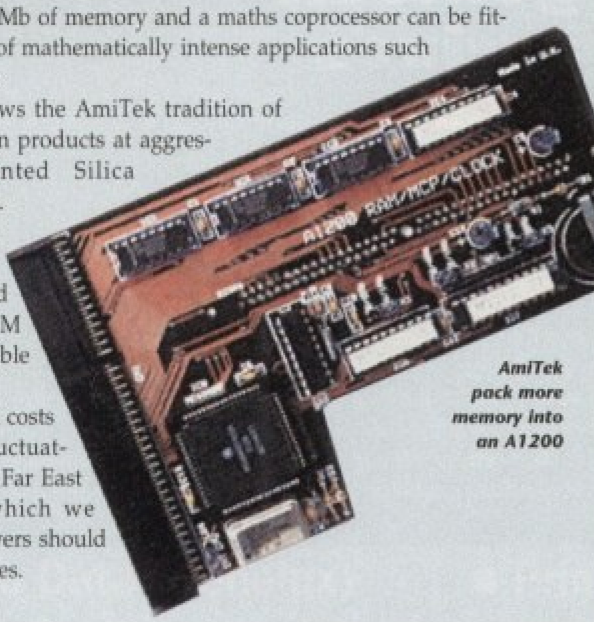
A MEMORY expansion board containing a battery-backed clock has just been added to AmiTek's range of products at Kent-based Silica Systems (081-309 1111).

It gives A1200s up to 8Mb of memory and a maths coprocessor can be fitted to increase the speed of mathematically intense applications such as computer aided design.

"This new board follows the AmiTek tradition of offering high specifica-tion products at aggressive prices," commented Silica spokesman Andy Leaning.

"AmiTek delayed the release of their board to ensure that they could offer end users a RAM board at the lowest possible price."

Unpopulated the board costs £79.95, and with costs fluctuating following disasters at Far East production plants – which we reported last month – buyers should call Silica for memory prices.



AmiTek pack more memory into an A1200

Amiga takes video control

AMIGA computers are behind a new video wall system just introduced by Watford-based audio-visual and multimedia specialists CD Interactive.

Expandaview enables a wall of up to 256 monitors to be built and, using specially-written software running on A1200s, point of sale and point of information systems can be developed.

And another program running on an A4000 powers the video wall in sporting arenas, featuring an on-screen clock, scoring, messaging and realtime animations.

Among the first customers are Wolverhampton Wanderers Football Club, who will install two 256-monitor scoreboards at their Molyneux Stadium.

It will enable the club to display match information as well bringing in extra advertising revenue.

A spokesman for CD Interactive told *Amiga Computing* that Amigas were chosen because the firm's software division of had been working with the computers for several years.

Back to school with AMOS

AMOS owners can now learn how to write educational programs with the help of *AMOS in Education*, the latest addition to Kuma Books range of publications.

According to Kuma it gives budding programmers all the information they need to produce software, from the planning to tips and tricks to make the program run smoothly.

It starts with full specifications, graphics and code for four educational games and then allows the reader to practice writing just the graphics and specifications for a fifth.

The last section gives a game's specifications and readers can add their own graphics and ideas before linking it to the main program.

"It is very useful to be able to write programs which children can use at home and which will reinforce what is being learnt at school," said a Kuma spokesman.

"AMOS gives people the opportunity to write educational programs for their children, brothers, sisters or friends."

AMOS in Education was written by Anne and Len Tucker, AMOS programmers who have produced several licenseware and commercial titles.

A coupon included in the £12.95 book enables buyers to send for a free disk containing finished programs, useful routines and source code to follow.

Suppliers to hold London mini-show

A GROUP of Amiga peripheral and software suppliers have joined forces to hold a mini-computer show at the Novotel Hotel, Hammersmith in the next few weeks.

The organisers say that visitors will be able to see demonstrations of software and hardware and ask questions about many products.

Companies promising to attend include Gasteiner, Power Computing, Amiga Warehouse, Golden Image and First Computer Centre.

Said Gasteiner's Vas Shah: "We feel this show will provide Amiga users with a great opportunity to see products up close and to learn first hand about particular features." Spotlight Amiga will be held on Sunday, October 17 from 10am and cost £1.50 for admission,



CanDo gives – and takes away

Denny Atkin looks over an enhanced authoring system, plus two programs for experimenters

Inovatronics have once again upgraded and enhanced their CanDo authoring system. But along with the give came some take — they removed one of CanDo's best features and made it an extra-cost item.

If you're not familiar with CanDo, it's an application that lets you use a graphic interface and an easy-to-learn scripting language to create your own programs without having to learn all the gory details of programming the Amiga. It's remarkably powerful, and has actually been used to create commercial Amiga applications.

The new features help bring CanDo up to date with the latest Amigas, as well as adding some capabilities long-requested by CanDo programmers.

The biggest enhancement is AGA graphics support; CanDo now pulls up a requester which lets you select from any of your Amiga's available graphics modes — this should also allow you to create CanDo applications for cards like the Retina and Picasso II, which offer standard system ScreenModes requester entries.

Another big enhancement is the ability to play MOD music files (including 8-voice OCTAmed songs), with full control over tempo and volume.

The interface has been significantly cleaned up, making it easier to find functions and to perform formerly tedious operations such as moving a group of objects across the screen.

MORE SUPPORT

Both CanDo programmers and users of CanDo applications will be happy to discover that Inovatronics has done away with their horrid file requester and added support for the system standard ASL requester. The Help function has been converted to an AmigaGuide file, and you can now add AmigaGuide Help text to your own CanDo applications.

There are other improvements, such as better Compugraphic and ColourFont support, and a built-in layout editor that allows you to flow text around irregular shapes.

The upgrade is only $25 for CanDo 2.0 users (European users need to add $10 for surface or $25 for air), which seems quite reasonable. However, there are are other things you should know. First, CanDo 2.5 requires a hard drive, 2MB of RAM, and AmigaDOS 2.04 or later. (Not a big deal, since the previous version really required a hard drive and lots of RAM to run smoothly.)

More signicantly, you can no longer use the stock CanDo package to create stand-alone applications. CanDo 2.0 and earlier included DeckBinder and DeckBrowser, utilities that would allow you to package your CanDo creations as self-running programs that you could give away to your friends or sell commercially. InovaTronics now wants a $50 to $200 yearly licensing fee if you plan to distribute your CanDo applications commercially.

On the plus side, they will waive the licensing fee if you're creating a PD or shareware program, but you have to send them a copy of your application to get the special binder/browser you'll need — inconvenient, especially for European users.

However, the upgrade does look good. If you want to create CanDo applications for AGA machines, it's definitely worth getting. If maintaining 1.3 compatibility is important, and if you don't want to go through the licensing hassle, you might just want to stick with CanDo 2.0. Inovatronics can be reached at (214) 340-4991.

Fontastic celebration

St. Louis-based Soft-Logik celebrated the end of the floods that have plagued the midwestern United States this year by acquiring world-wide distribution rights to the TypeSmith font design program, and have just released an enhanced version.

The biggest news in TypeSmith 2.0 is AutoTracing: you can now load in a scanned image of a character (or a brush made from a bitmap font character) and TypeSmith will automatically create an outline version.

TypeSmith 2.0 now loads, edits, and saves bitmap as well as outline fonts. Other new features include automatic font-hinting, clipboard support, the ability to cut and paste characters between two open fonts, and much-increased speed.

The upgrade is $50; the package retails for $199.95. Contact Soft-Logik's UK Sales office at 0628-784006, or write Soft-Logik Publishing Limited, Broadway House, 21 Broadway, Maidenhead, Berkshire, SL6 1JK.

Chance to try some new Mega tricks

The recursively named MegageM have announced two new products that will appeal to the Amiga user who's a bit of an experimenter.

By appearances, MegageM's RPaint is a full-featured non-HAM ECS paint program that supports up to 64 colours in autoscrolling resolutions up to 16000x16000. All the standard paint-program commands are available from pull-down menus or key equivalents, and the program supports scalable outline fonts. Sounds pretty average, right?

Wrong. Underneath the standard user interface lies full-blown ARexx support for all the commands. At the simplest level, this means you can use RPaint as an easy way to display graphics created by programs written in the ARexx scripting language included with AmigaDOS 2.04 and greater.

Since ARexx doesn't have any graphics commands built in, this adds a lot of flexibility to the language. But even more useful is the capability to control RPaint's display from other ARexx-savvy programs.

For instance, you could write an ARexx macro to read data from a Professional Calc spreadsheet and draw a chart or graph of the data on RPaint's screen; you could write a script to draw images in real-time, controlled from a multimedia program like CanDo or AmigaVision; or simply use it to create user-controlled slideshows.

RPaint can automatically create a script from your drawing actions, which you can then go in and modify and enhance — this feature is great for creating interactive presentations.

This programmable paint program requires AmigaDOS 2.04 or greater and retails for $79.95 (add $8 shipping to Europe.)

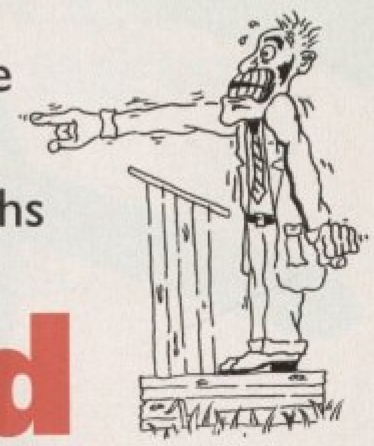
Is your biggest complaint about your Amiga the fact that it has a bit of a two-dimensional personality? MegageM's StereoPro Amiga is a joystick connector interface for LCD 3D glasses which is a plug-compatible replacement for the old X-SPecs 3-D glasses. Any program which supports X-Specs, such as VistaPro or Imagine, will work fine with StereoPro, producing amazing 3-D effects.

Packed with StereoPro is a disk full of 3D utilities. The neatest of these is MegageM's own SPX, a program which lets you create real-time, animated objects in three dimensions via ARexx.

This double-buffered animation systems fully supports PAL; some impressive sample scripts are included to get you started. Perhaps one of the neatest applications is using *StereoPro in conjunctions with the* Animatrix Modeler ($99.95 from Dubois Animation, 405-348-4670) — you can actually create 3D objects for program like Imagine and LightWave in three dimensions!

StereoPro retails for $225, including one set of 3D glasses. The interface has a port for a second set of glasses, which can be bought for $150. StereoPro and RPaint are available from MegageM, 1903 Adria, Santa Maria, CA 93454; (805) 349-1104.

With many so-called Amiga fans seemingly determined to suffocate Commodore's latest creation at birth, *AC* offers up a few home truths



The world beating CD32

Ever since the launch of the CD32, the Amiga world seems divided into two distinct camps. On the one hand we have the amazed but happy campers who are simply thankful that the big C seem to have finally hit the hardware nail right on the head.

Unfortunately just across the grass at the waterlogged end of the muddy field of argument sit the very unhappy campers. These boys actually go camping on the off-chance that it will rain – and more importantly, rain on others.

To be fair, such perversions aren't merely remnants of unhappy childhoods. In fact the perpetrators have now become the targets as Commodore suffer the soggy wrath of the cynics who are only happy when pouring scorn on Commodore past and present.

To be honest I've spent the odd weekend at this particular beauty spot, along with most Amiga enthusiasts. With the farcical and occasionally dubious marketing strategy the big C adopted during '92, even the most devoted Amiga fans must be at least a little disillusioned at the constant revisions to the range.

First the A500 vanished, then the A500Plus and the A600, all jockeying for position and finally dumped in favour of the A1200. Obviously nobody wants to impair the progress of the machine, however a slightly more open-handed approach to the punters wouldn't have gone amiss.

CUSTOMER LOYALTY

After all, leaving loyal cash-carrying Amiga fans with the feeling of being duped doesn't exactly instil confidence or customer loyalty – both key factors in halting the tide of Segas, Nintendos and game-playing PCs which, according to the pundits, will mean the inevitable demise of the Amiga.

With the opposition in mind it is perhaps the ideal time to highlight why the new CD-ROM will prove the cynics wrong. Although without doubt the biggest bite from the game-playing cake has been scoffed by Sega and Nintendo, both systems have one major problem.

As I'm sure you're aware, both jealously guard their stranglehold on software development. If you're not in some way affiliated to either company there's no way to code software for their respective consoles.

After all, if you're in the business of churning out hardware at cost and then relying almost entirely for profit on subsequent software sales, why share your hard-earned profits with others?

Although great news for the corporate giants, what happens to the hordes of software developers left out of the Japanese duopoly?

The Amiga (and even the ST) markets – large and established – are the obvious haven. However, like the corporate stranglehold of the consoles, disk-based software also has its problems – primarily the constant jolly rogering of the pirates. Thanks to piracy, a game need only reach 30,000 sales to become a big seller.

With over 1.5 million Amigas in the UK that's a pretty graphic illustration of the problem. However the CD32 faces no piracy problem and as a consequence is a software developer's dream. It can outperform, outpace and undercut any console, and most important of all, it's accessible to anyone who wants to code for it.

Almost regardless of what happens elsewhere, it's the appeal of the CD32 to the software houses which will ensure its success. An old adage states that "software maketh the machine" and if that machine beats the opposition, all the better.

> ***'It can outperform, outpace and undercut any console'***

All it takes to ensure success is one "must have" product. Having seen the CD32 and FMV in action I'm convinced it's only a matter of time before the prospect of 100 per cent piracy-free profit inspires a software house into producing a work of genius.

As for the PC threat, I'm far from convinced there's as much to worry about as many think. Admittedly a quick bash on a 486 33DX as it puts the latest flight sim through its paces can be pretty impressive.

However the salesman will certainly avoid the little things, like cost, ease of use, storage, add-ons and so on. For a start most decent PC games are only at their best on a 486.

In addition if you're even partially fond of sound, fancy a monitor and require a hard disk that's capable of holding more than a couple of games they'll be very little change out of £1,300 – assuming you've thrown in a CD-ROM.

After all that cash and the absolute misery associated with setting up any PC you'll be the proud owner of a shiny new machine based on 20-year-old technology that has just 640k of base memory.

Of course you could always save £1,000, get 2Mb of active memory, more colours and superior sound. However that will mean you'll miss out on the idiosyncrasies of DOS, programming your mouse and running Windows – alias Workbench 1.2 – assuming you've got enough additional memory that is.

Although *AC* has done its fair share of Commodore slapping in the past, the blow for the CD32 deserves to land squarely between the shoulder blades rather than across the chops.

Paul Austin
Associate Editor

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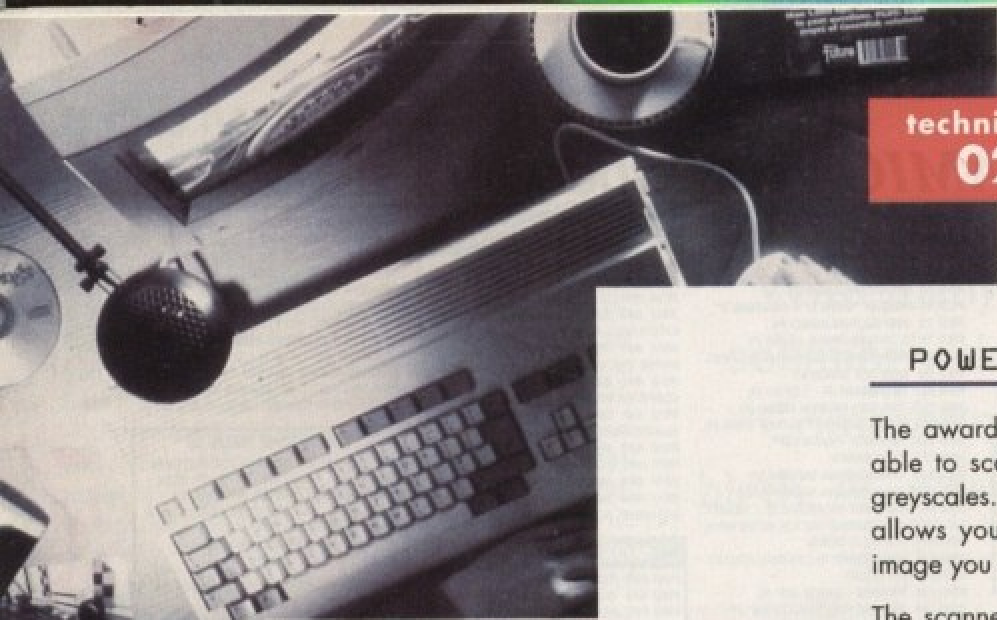
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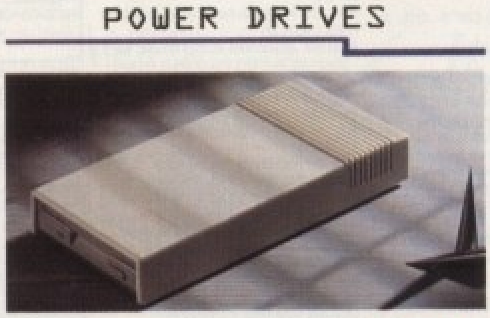
PC880B POWER DRIVE

The award winning external disk drive which includes Anti-Click (cures that annoying click), Virus Blocker (prevents viruses) and built-in Backup hardware.

The PC880B is available with Blitz Amiga, Blitz and X-Copy or Cyclone compatible (this drive is only available to registered owners of X-Copy Professional. You must provide proof of purchase of X-Copy Professional). The drive comes in a choice of two colours, black or cream.

PC880B WITH BLITZ AMIGA £60
PC880B WITH BLITZ, X-COPY ..£75
PC880B (CYCLONE COMPATIBLE) £65
PC880B IN BLACK CASE £65

POWER DRIVES



PC880E ECONOMY DRIVE ..£49.95
PC881 A500 INTERNAL £45
PC882 A2000 INTERNAL £45
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3.5" SYQUEST DRIVE

3.5" removable hard drive from Syquest. Each cartridge stores 105MB.

3.5" SYQUEST DRIVE (17ms) .£739
3.5" 105MB CARTRIDGE £79

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Backup disks at lightning speeds, and stop all external drives from clicking. Blitz does not let viruses from being written into the bootblocker. (The 1988 Copyright act applies)

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FLOPTICAL A2000 KIT £289
FLOPTICAL A500 EXTERNAL....£389

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The awarding winning PowerScanner is able to scan from 100 - 400DPI in 64 greyscales. The scanning software included allows you to edit and manipulate any image you scan.

The scanner interface includes a through port for a printer. (The Amiga only displays 16 greys)

POWERSCANNER V3.0 ....£99
POWERSCANNER INC. OCR ...£149
OCR JUNIOR SOFTWARE £49
OCR FULL VERSION UPGRADE ..£49
(OCR full version is only available to registered users of OCR Junior)

COLOUR POWERSCANNER

Scan 100 - 400 DPI in 4096 colours, with the Colour PowerScanner.

The scanner interface includes a full through port.

COLOUR POWERSCANNER £239

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If you consider your scanner system to be inferior to the Power Scanner, we will upgrade your software and interface.

V3.0 UPGRADE (INC INTERFACE) ..£49.95
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High resolution 24-bit colour flatbed scanning from Epson. Scan up to A4 in size on this 600 DPI scanner. Comes with PowerScan software or ASDG software.

EPSON GT-6500 (INC SOFTWARE) ...£799

EPSON GT-8000

Power is official distributor for Epson
High resolution 24-bit colour flatbed scanning from Epson. Scan up to A4 in size on this 800 DPI scanner. Comes with PowerScan software or ASDG software.

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Automatic 50-sheet document feeder for the GT-6500 and GT-8000 scanners.

DOCUMENT FEEDER.................£399

A600 MEMORY CARD

1MB RAM with battery backed clock

A600 1MB RAM £39.95

PC501+ MEMORY CARD

Our RAM board is designed especially for the A500+ computer and comes with 1MB of RAM on-board to expand your memory to 2MB of chip RAM (fits in the trap-door).

PC501+ MEMORY CARD £35.95

1.5MB RAM BOARD

Fully supports 1MB of chip RAM and is fully compatible with Fatter Agnus (requires Kickstart 1.3 and above, not compatible with A500+. Your Amiga needs to be opened, this may effect your warranty).

1.5MB RAM BOARD £85

1MB WITH THRU'PORT



Expand your A500's memory up to a total of 2MB without disposing of your existing 512K upgrade (works with 1MB chip RAM, 512K RAM must be 4 chip type or not exceeding 9cm in length. Your Amiga needs to be opened, this may effect your warranty).

1MB WITH THRU'PORT £49

A500 MEMORY CARD

4 Chip 512K RAM expansion with or without battery backed clock.

Free software included (A500+ compatible)

A500 CARD WITH CLOCK £29
A500 CARD WITHOUT CLOCK ..£24

A500 8MB POWERBOARD

Expand your Amiga from 2MB to 8MB of RAM. Plugs into side slot, full auto config. and full through port.

A500 2MB POWERBOARD £129
A500 4MB POWERBOARD £189
A500 8MB POWERBOARD £289
1 X 4 ZIP £14.95

A2000 8MB POWERBOARD

2MB to 8MB RAM expansion for the A2000

A2000 2MB POWERBOARD £99
A2000 4MB POWERBOARD ...£149
A2000 8MB POWERBOARD ...£239

COMMODORE AMIGA

A wide range of Amiga's are available.

A1200	£295
A1200 60MB HD	£475
A1200 80MB HD	£505
A1200 170MB HD	£660
A1200 212MB HD	£725
A4000 68040 120MB HD 6MB	£2329
A4000 68030 80MB HD 4MB	£1129
A4000 68030 80MB HD 2MB	£979

MONITORS

A wide range of monitors are available.

PHILIPS CM8833 MK2 (INCLUDES LOTUS 2, ON-SITE MAINTENANCE)	£229
COMMODORE 1084S	£199
MULTISYNC MONITOR	£POA

ICD PRODUCTS



ICD sole distributor. Trifecta is SCSI 2 and IDE compatible. (Trifecta EC is only IDE)

TRIFECTA 2000 LX BARE	£139
80MB HD	£239
160MB HD	£329
200MB HD	£399
TRIFECTA 500 LX BARE	£195
80MB HD	£295
160MB HD	£359
200MB	£459
TRIFECTA 500 EC BARE	£145
80MB HD	£279
160MB HD	£339
200MB HD	£419
AD IDE 2 PRIMA BARE	£70
80MB HD	£245
160MB HD	£309
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PRIMA 3.5" MOUNTING KIT	£29
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212MB HD	£499
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ADSPEED AMIGA	£119
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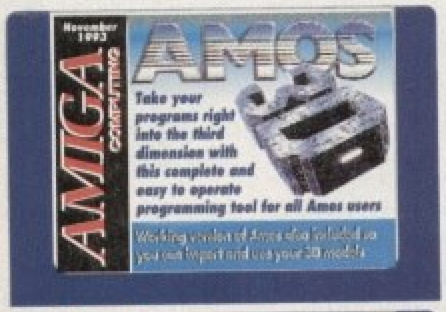
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the DISK

Now you can design your own exciting objects for use within any Amos program using this powerful object modeller

Using the CoverDisks

In order to use the CoverDisks, insert the disk containing the program that you wish to use then boot your Amiga. If you own an A500 Plus, A600, A1200 or any other Workbench 2/3 machine please ensure that the disks are write-enabled before booting.

Creative modelling

As well as the Amos 3D Object Modeller, we have included Amos on the disk. Due to their size, both have been archived. In order to use them you will need two freshly formatted disks. Boot from the CoverDisk and type in the command:

```
Execute Create
```

then follow the instructions that appear on your screen.

When you boot from the disk labelled Object Modeller, a 3D demo is displayed to whet your appetite. To enter the object modeller, press any key.

Amos 3D uses the concept of shelves as places to store objects. Although you can't see them, there are 12 shelves. At the top of the screen there are five which contain simple shapes known as primitives.

Directly below these there are another five for you to store your own objects. Between these ten and the control panel there are two more shelves which is where objects are manipulated and constructed.

To get a feel for the screen layout, hold down the left mouse button and move the pointer around the screen. This will result in the shelves being displayed as boxes.

To move an object between shelves, use the left mouse button to select both a source object and a destination shelf then click on the copy tool.

Move the cube to the left-hand work area then click on the rotate button. In order to rotate the cube you must keep the button held down while moving the mouse. Copy each of the five primitives in turn to one of the work shelves, and examine them using the rotate and zoom facilities.

Notice that only two of them are 3D objects. The flat ones are intentionally so and are useful for creating spaceships

Amos 3D commands

Having constructed some objects you will be itching to incorporate them into your Amos programs. It is beyond the scope of this article to explain how to program in Amos and about the additional background information explaining 3D computer graphics.

However, for those readers who have already acquired and digested this information here are the all important Amos 3D commands:

The display

Td SCREEN HEIGHT n .... *set the 3D system screen height to n raster lines*
Td REDRAW .... *draw all currently visible objects and any background*
Td CLS .... *clear the 3D display area with extra speed*

Invoking objects

Td OBJECT n,name,x,y,z,A,B,C .... *creates an object instance based on a previously loaded object definition where:*

n – object number
name – object name
x,y,z – world co-ordinates of the objects starting position
A,B,C – the attitude of the object

Td KILL n .... remove object n

Loading and removing objects

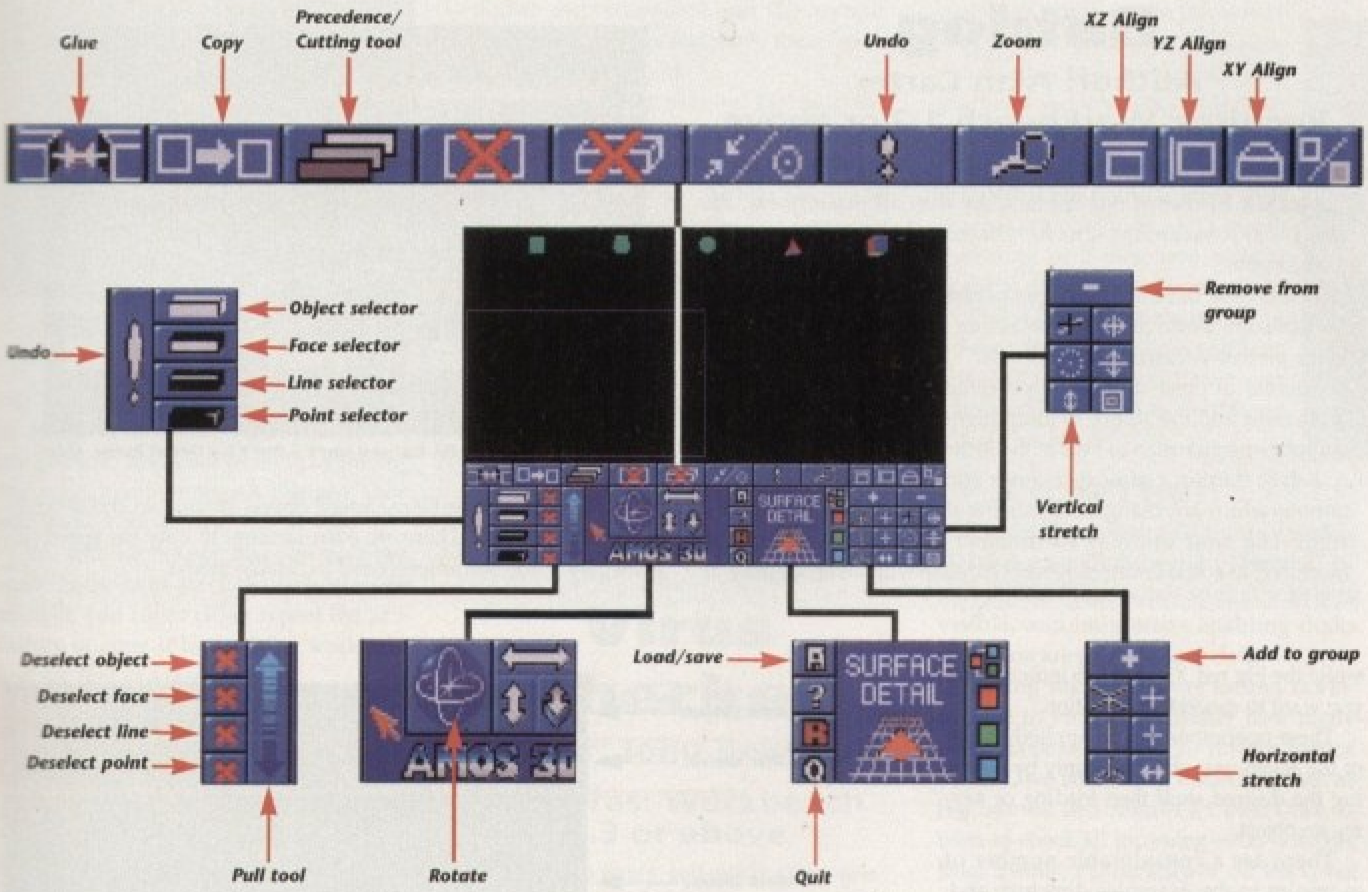
Td DIR folder$ .... *tells Amos 3D to look in folder$ for object files*
Td LOAD file$ .... *load the named object*
Td CLEAR ALL .... *remove any loaded objects*
Td KEEP ON .... *tells Amos 3D to keep loaded objects in memory*
Td KEEP OFF .... *reverse of Td KEEP on*

Object movement commands

Td MOVE n,x,y,z .... *move object n to the absolute world co-ordinate specified by x,y,z*
Td MOVE REL n,dx,dy,dz .... *move object n relative to its current position*
Td FORWARD n,d .... *move object n forward by d VLUs*

Reading an objects position

=Td POSITION X(n) .... *returns the world x co-ordinate of object n*
=Td POSITION Y(n) .... *returns the world y co-ordinate of object n*
=Td POSITION Z(n) .... *returns the world z co-ordinate of object n*



wings, walls or anything that needs to be of minimum depth. Take a closer look at them using the Magnify tool to zoom in. To return to the normal view, click on the Zoom button again.

Now copy the cube to a work space and we will show you how to deform objects by stretching and squashing them. Click on the Plus button so that corner node markers are displayed at the corners of the cube.

Now hold down the horizontal stretching button and move the mouse to elongate the cube into a rectangular box. The Vertical Stretch button works in exactly the same way.

Care must be taken to ensure that an object is positioned perpendicular to the viewpoint. Otherwise the results of deforming an object may not be as you expect.

To see what we mean, rotate a cube so that three sides are clearly visible then use the horizontal stretch tool to distort it. Having done that, rotate the object and you will see that it is no longer rectangular.

Pyramid

The easiest way to align an object with the screen axes is to use the tools provided. It is possible to align an object with the XZ plane, YZ plane and XY plane. As an example we are going to align the pyramid with each of these in turn, so copy this primitive to one of the work shelves.

Rotate it so that the square base is visible, then click on the object face selector until the base is highlighted. Now click on the XZ-align tool with the left mouse button and the base will face upwards.

To make it face downwards, click on the button using the right mouse button. The YZ and XY align tools work in the same way but you might like to play around with them just to become familiar with the way they orientate objects.

Rather than distort a whole object, as described earlier, you may want to select one of its edges or corner points and pull it away from the object, thereby stretching one area of the shape.

If it is not already in a work area, copy the cube primitive into one then click on the object face selector. Click on the line selector to choose a line then use the pull tool to move the chosen line in relation to the rest of the object.

This tool varies in sensitivity along its length, the up arrow end being least sensitive. Moving a vertex, rather than an edge, is also achieved using the Pull tool.

The procedure is the same as with edges, except that the chosen line must have the point that you want to move as one of its endpoints. Having ensured this, click on the point selector to highlight your chosen node then manipulate it using the Pull tool.

Complex

Up to this point we have only been working with simple primitive shapes. Now we are going to take a look at joining objects to form more complex models. Copy the pyramid and cube primitives to separate work areas.

Select the square pyramid base and one of the cube sides using the object face selector. Click on the pyramid first, then the cube and finally on the Glue tool. A copy of the pyramid should now be appended to the cube, leaving the original pyramid intact.

The new shape will look a little bit strange because the object modeller does not automatically calculate which faces should be hidden. In order to do this, you will have to click on the Precedence/Culling tool.

Just to the left of the surface detail ➤

CoverDisk Hotline

Amiga Computing operate a CoverDisk hotline on 0625 859766 to help anyone experiencing problems. It is ONLY available on Thursdays between 2-5pm so please do not try to call us at any other time as you won't get an answer.

Changing the attitude of objects

Td ANGLE n,a,b,c	*sets the angle of object n where a,b,c are the angles made (respectively) with the world x,y,z axes*
Td ANGLE REL n,dA,dB,dC	*sets the angle of object n relative to its current position where dA,dB,dC are the angles made (respectively) with the world x,y,x axes*

Reading an object's attitude

=Td ATTITUDE A(n)	*returns the A angle of object n*
=Td ATTITUDE B(n)	*returns the B angle of object n*
=Td ATTITUDE C(n)	*returns the C angle of object n*

String commands

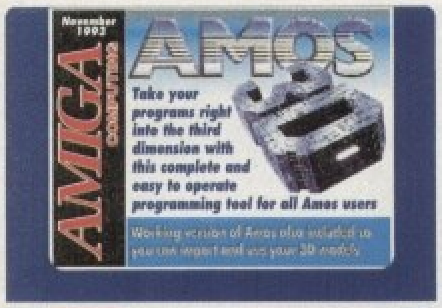
Td MOVE X n,string	*applies the X movement command in string to object n*
Td MOVE Y n,string	*applies the Y movement command in string to object n*
Td MOVE Z n,string	*applies the Z movement command in string to object n*
Td ANGLE A n,angle$	*applies the A movement command in string to object n*
Td ANGLE B n,angle$	*applies the B movement command in string to object n*
Td ANGLE C n,angle$	*applies the C movement command in string to object n*

Bearing and range

=Td BEARING A(n1,n2)	*returns the A bearing of object n2 from object n1*
=Td BEARING B(n1,n2)	*returns the B bearing of object n2 from object n1*
=Td BEARING R(n1,n2)	*returns the range of object n2 from object n1*
=Td BEARING A(n,x,y,z)	*returns the A bearing of the world co-ordinate x,y,z from object n*
=Td BEARING B(n,x,y,z)	*returns the B bearing of the world co-ordinate x,y,z from object n*
=Td BEARING R(n,x,y,z)	*returns the range of the world co-ordinate x,y,z from object n*
=Td RANGE(n1,n2)	*returns the distance between objects n1 and n2*

Converting between co-ordinate systems

=Td SCREEN X(x,y,z)	*returns the Amos X co-ordinate of world co-ordinate x,y,z*
=Td SCREEN Y(x,y,z)	*returns the Amos Y co-ordinate of world co-ordinate x,y,z*
=Td WORLD X(n,x,y,z)	*takes a point (x,y,z) expressed in local co-ordinates rel-*





Batdog

Author: Alan Carter

Requires: Workbench 1.3 or above

This has to be one of the best games ever submitted for the CoverDisk by one of our readers. As with all platformers, the object is to roam around screens collecting objects while avoiding the bad guys.

In this case, there are two types of object, rings and green balls. The balls are worth more and collecting them will result in access to the pinball-influenced bonus levels.

Success in these will allow power-ups in the form of faster movement and the ability to jump higher. Ultimately there is an end of game guardian to beat in the form of a spaceship.

Before starting a game there are a number of user-configurable options which are changed by moving the joystick to the left and right. The most useful is the number of lives, which may be increased to a maximum of seven. Anyone with an accelerator or an A1200 will find the Game Speed option invaluable and should set it to 50 per cent. There are even facilities to alter the speed of gameplay in the bonus levels and to disable inertia.


Batdog can fly, but you can't – don't try this at home, kids!

➤

panel is a column of buttons. You could be forgiven for thinking that the top one is the letter A but in fact it is a picture of a floppy disk.

Clicking on this button will reveal the load and save panel which shows the current path, the files contained therein and three buttons. The leftmost one is the load button, the middle is the save button while the big red X is used to indicate that you want to cancel the operation.

These operations can be applied to any of the seven user shelves simply by selecting the desired shelf then loading or saving an object.

There are a considerable number of examples in the examples directory and, as an example of disk operations, we are going to load an object.

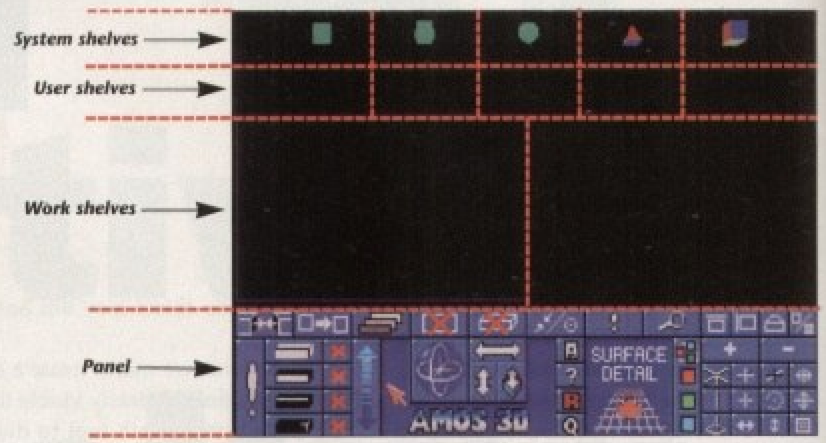

The example H before gaps are added

Disk Operation

First we must tell the program which shelf the object is to be loaded into. Click on the leftmost work area then click on the disk operation button. Double click on the examples drawer to open it then use the scroll arrows to find the file called Amiga.

Selecting it and clicking on the load button will automatically take you back to the main control screen once the image has loaded.

If you want to save an image, follow the same procedure but specify a name by typing it in rather than selecting one from the list – otherwise you will overwrite an existing file. You may find it useful to store your objects on a separate disk, or on your hard drive if you have one.



To do this you should click on the path requester, use the Delete key to erase the existing path, and enter the disk name followed by a colon. Alternatively, you could just enter the logical name of the device.

Sometimes when making models, the desired effect is to leave a small gap between blocks to further enhance the 3D effect. Imagine two parallel columns that are joined by a cross member to form the letter H. If the cross member is a small distance away from the uprights, its ends will be visible when the object is rotated. To create this effect, we need to join the appropriate faces then move the blocks apart a little. In our next example, we will build this model and show you how to define and move groups of blocks.

Copy the cube into one of the work areas and use the stretching tools to turn it into a long box. Don't bother about mak-

Amos 3D commands continued

ative to object n and returns the world X co-ordinate

=Td WORLD Y(n,x,y,z) .... *takes a point (x,y,z) expressed in local c-ordinates relative to object n and returns the world Y co-ordinate*

=Td WORLD Z(n,x,y,z) .... *takes a point (x,y,z) expressed in local co-ordinates relative to object n and returns the world Z co-ordinate*

Td VIEW X(n,x,y,z) .... *takes a point in world co-ordinates and converts it to the local x co-ordinate relative to object n*

Td VIEW Y(n,x,y,z) .... *takes a point in world co-ordinates and converts it to the local y co-ordinate relative to object n*

Td VIEW Z(n,x,y,z) .... *takes a point in world co-ordinates and converts it to the local z co-ordinate relative to object n*

Collision detection and zones

Td SET ZONE n,zone,x,y,z,r .... *defines an invisible spherical zone around n object where:*

n – object number
zone – zone number
x,y,z – position of the zone centre
r – radius of sphere

=Td ZONE Z(n,z) .... *returns the z co-ordinate of the zone's centre in world co-ordinates. Here z is a zone on object n*

=Td ZONE R(n,z) .... *returns the radius of zone z on object n*

Td DELETE ZONE n,zn .... *If zn >= 0, removes zone zn from object n, otherwise all collision zones are removed from the object*

Pointing an object

Td FACE n1, n2 .... *point object n1 at object n2*

Td FACE n,x,y,z .... *point object n at the point x,y,z*

Checking an object's visibility

=Td VISIBLE(n) .... *returns 1 if object n is visible, otherwise 0*

Shape animation

Td ANIM REL n,p,x,y,z,finish_flag .... *applies a change (delta) to point p of object n as specified by x,y,z. The finish_flag indicates whether any more ANIM REL commands follow this command. If there are, set this flag to 0, otherwise 1*

Td ANIM n,p,x,y,z,finish_flag .... *moves point number p in object n to x,y,z. The finish_flag works in the same way as with the ANIM*



Joining a pyramid to a cube

ing the ends square – as long as the shape is elongated it doesn't really matter. We are going to make the letter H by joining the cross member to one upright, then add the second upright.

We will use the box that you have just made as the cross piece. To make the first upright, you could either repeat the procedure or copy it to the other work area and use that as a starting point.

Having done that, use the face selector to highlight one side of the upright and one end of the crosspiece. Click on the upright followed by the crosspiece then on the Glue tool. To rectify the image, click on the Precedence/Culling tool.

Before selecting the face on the other end of the crosspiece, we have to tell Amos 3D which block it is contained in. Click on the block selector gadget until the crosspiece is coloured in, then use the face selector to select the exposed end face.

Correct face

Because the Object Modeller joined a copy of the first upright, the original should still be in the other work shelf with the correct face selected.

All that remains to complete the solid letter H is to click on the upright followed by the partial H, glue them together and rectify the result with the Precedence tool.

To make the crosspiece look as though it is floating, we need to define it and one of the uprights as a group and move them away from the second upright. Then define the crosspiece and the second upright as a group and move these away from the first upright.

Using the block selector, highlight the left upright then click on the Plus button. Now do the same for the cross member to add it to the group. Select the right upright and highlight the face that is in contact with the crosspiece, then use the Face Relative Normal tool.

This tool is the middle one in the group of buttons that resembles a hat stand. To render the object as a solid again, de-select the block and face selections by clicking on the red crosses. The model is almost complete now – all that remains is to repeat the above procedure for the other upright.

Virus Checker

Author: John Veldthuis

Requires: Workbench 1.3 or above

Viruses are nasty self-replicating programs that affect every Amiga owner at one time or another. They are written by malicious people out to prove how clever they are by writing programs to crash other people's machines and overwrite their valuable data with silly messages.

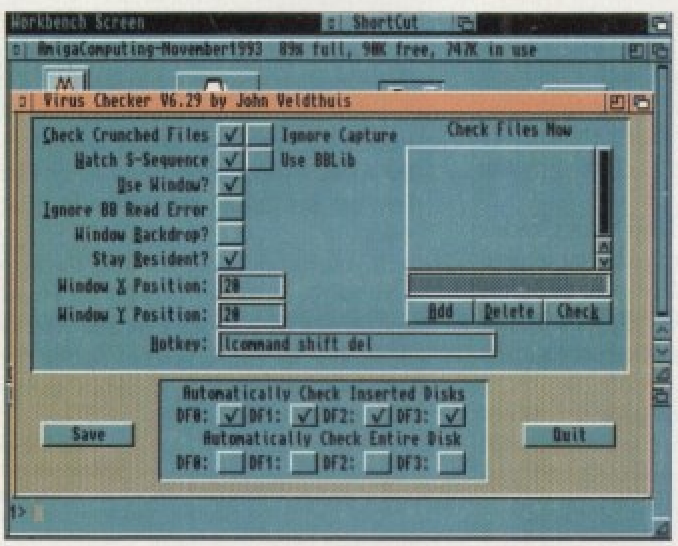
Clearly, these so-called programmers are nothing more than morons with sad lives – let's face it, they must be if they have nothing better to do with their time!

There is nothing clever about writing viruses, they are trivial to code and just as easy to detect with handy utilities such as BootX and Virus Checker.

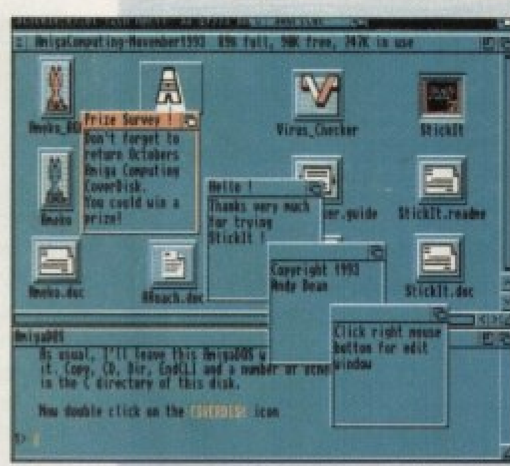
Protection

The safest way to avoid a virus attack is to keep your disks write protected, by moving the protect tab so that a hole is visible, and only write enabling disks when you are going to save data.

Having said that, every system is vulnerable to viruses no matter how many precautions are taken. To further reduce the risk, we advise that a checker, such as the one on this month's CoverDisk, is used to check all incoming disks whether from friends, PD libraries or off the cover of your favourite Amiga magazine. Most ➤



Kill those viruses with Virus Checker



Replace your sticky yellow reminders with electronic ones

StickIt

Author: Andy Dean

Requires: Workbench 2 or 3

Are you one of those people whose life is ruled by little yellow sticky pieces of paper with reminders scrawled on them? Even if they don't rule your life, there is no doubt that they are one of the most useful items of stationary ever invented.

They aren't perfect though, as every once in a while they have an annoying tendency to drop off your monitor (or wherever you usually stick them).

StickIt has been designed as a computerised version of the yellow peril and allows you to stick notes anywhere on your Workbench screen. Each note appears in its own little window and can be edited by activating the window with the left mouse button, then pressing the right one.

Apart from the edit window, there are some simple editing options available from the menu bar. These allow you to cut, copy and paste text between notes and save changes to disk.

REL command

=Td ANIM POINT X(n,pn) .... *returns the X co-ordinate of animation point pn in object n*

=Td ANIM POINT Y(n,pn) .... *returns the Y co-ordinate of animation point pn in object n*

=Td ANIM POINT Z(n,pn) .... *returns the Z co-ordinate of animation point pn in object n*

Surface animation

Td SURFACE name1,b1,f1 to n2,b2,f2,rt...*copies surfaces with parameters:*

name1 – the name of the source object
b1 – block number within name1
f1 – face number within b1
n2 – destination object number
b2 – the block number within n2
f2 – the face number within b2
rt – rotation angle (range 0 to 3)

Td SURFACE POINTS p0,p1,p2,p3.......*specifies that point numbers p0,..p3 are to be used as anchor points for all surface animation on flat blocks*

Td SURFACE POINTS OFF .... *clears currently defined anchor points*

Backgrounds

Td BACKGROUND source,x1,y1,width,height to x2,y2 [,plane]
places a background behind 3D objects where:

source – screen number containing images
x1,y1 – co-ordinates of the image in the source screen
width – width of the image
height – height of the image
x2,y2 – screen co-ordinates of the image on the current Amos screen

Memory

=Td QUIT .... *unload the 3D extensions and all objects to release memory*

Td ADVANCED .... *allows advanced programmers to access the 3D objects directly in memory*

=Td ADVANCED n .... *returns the 3D data segment address if n is set to 0, otherwise returns the address of the object frame data structure for object n.*



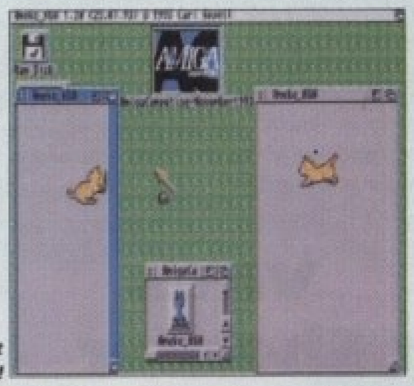
Ameko & Ameko AGA

Author: Carl Revell
Requires: Workbench 2 or 3

If the title of this Workbench hack gives you a sense of *déjà vu*, that's because we published an earlier version on the May CoverDisk. This month we bring you not one but two new versions.

Ameko is a cat penned into his own window who tries to catch the mouse pointer. When the pointer is to one side of the window, he scratches in desperation. If there is no mouse movement, Ameko quickly tires, wipes his whiskers, yawns then falls asleep.

Ameko AGA performs exactly the same as Ameko but includes support for Workbench 3. When run from the CoverDisk he will appear in outline form but if the number of Workbench colours is set to 16, Ameko will be coloured in. Many thanks to Carl for writing this version especially for *Amiga Computing*.



Catch that mouse boys!

Faulty CoverDisk?

If you subscribe to *Amiga Computing* and your disk does not work, please return it to:

Amiga CoverDisk
Europress Direct
FREEPOST
Ellesmere Port
L65 3ED

If you bought your copy from a newsagent and find that your CoverDisk is faulty, please return it to:

TIB plc
11 Edward Street
Bradfrod
BD4 7BH
Tel: 0274 736990

➤

reputable libraries and magazines check for viruses before distributing their disks but occasionally a new one slips through the net.

Before booting any freshly acquired disk, it is well worth examining it before it is used to boot your Amiga.

Bootblock

The vast majority of viruses are written to the bootblock and are only activated when the disk is used to boot an Amiga. It is therefore a good idea to use non-bootable disks for storing your data because if one becomes infected with a bootblock virus it is very unlikely result in any damage.

Another point worth mentioning is that commercial games usually have custom bootblocks as part of their copy protection, and this will cause most checkers to suspect a virus. When it comes to game disks there are two golden rules:

1. Never install a bootblock on a commercial game disk.
2 Always keep game disks write protected.

Also included on the CoverDisk is a script to install Virus Checker on hard drives. In order to use it, boot from your hard drive then insert the *Amiga Computing* disk and click on the InstallVC icon.

Finally, in order to keep Virus Checker up to date, the author needs you to send new viruses to him. If you suspect that you have found a new one, please do just that so that other Amiga owners may be protected from it.

Also, although this program is not shareware, we are sure the author would not refuse a donation if you find his program useful.

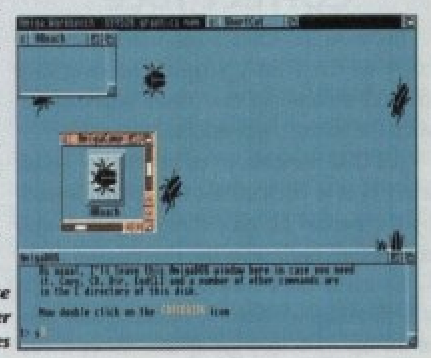
ARoach

Author: Stefan Winterstein
Requires: Workbench 2 or 3

ARoach is one of the funniest Workbench hacks that we have ever seen! Clicking on the program's icon results in ten animated cockroaches running around the screen. They move randomly, scurrying in search of somewhere to shelter.

When they find a window they will hide under it and stay there until it is moved or resized. To stop them running around, close the ARoach window or, if you fancy a bit of fun, use the left mouse button to splatter them.

If you run the program from the icon, it may not be apparent that the cockroaches are present because the disk and shell windows fill the entire screen. To see them, therefore, you will have to reduce their size by using the resize gadget.



Use the mouse pointer to splatter the roaches

Think you can do better?

Want to be famous? We are always on the look-out for quality Amiga programs for the CoverDisk. If you think you have written something good enough for others to share and enjoy, please send it in and we'll have a look.

The *Amiga Computing* CoverDisk is used by thousands of Amiga owners every month in places all over the world from New Zealand to the USA, so if your submission finds its way onto the disk, you could be famous.

Please make sure that you list ALL library and other files necessary for the program to work. Feel free to design your own icons for programs that run from Workbench, but please don't make them too big.

If you ensure your program is as compatible as possible with a wide variety of Amigas, it will also stand a better chance of publication. We are especially interested in small programs whether they be games, utilities or whatever.

We are prepared to pay our current rates for original work which has not been distributed in any other way and which has not been put in the public domain.

If you wish your program to be released as shareware or freeware we will be happy to publish it, but would, of course, be happier if we had been given it first!

Your submission MUST be accompanied by the submissions form, a copy of it, or a signed declaration to the same effect. Please supply your full name, address and phone number.

Unfortunately we cannot undertake to return disks sent to us as the volume of submissions makes this an impractical exercise.

Post your submissions WITH A COPY OF THIS FORM to:
Colin Yarnall, Amiga Computing, CoverDisk Submissions,
Europa House, Adlington Park, Macclesfield SK10 4NP.

Name .... Age ....

Address ....

....

Daytime phone .... Evening phone ....

Submission name .... Submission size ....

Type of program: ☐ Game ☐ Utility ☐ Other ....

<u>You must sign this declaration:</u>

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I understand that if my submission is bought by *Amiga Computing* I will be paid the current applicable rate. I know what copyright means and I will be responsible for any possible litigation arising by breach of it by Europress Publications Ltd as a result of using my submission.

Signed .... Date ....

The *Amiga Computing* CoverDisk is designed to be as simple to use as possible. Follow these instructions and you'll be up and running in no time!



GETTING STARTED

New readers may have difficulties using our CoverDisk, so we have included this page to help you out.

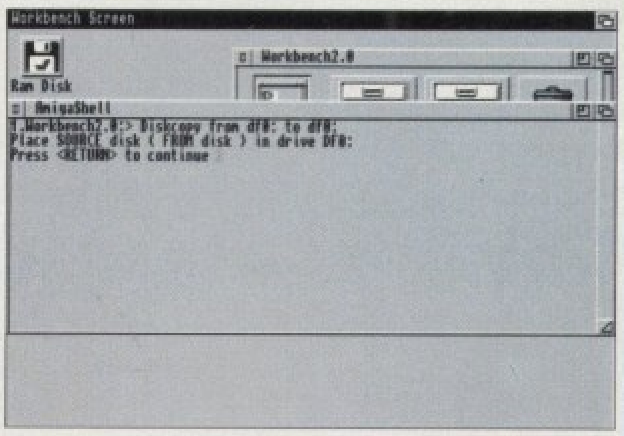
Below we explain how to copy files from one disk to another, how to copy the entire CoverDisk and how to de-archive programs. None of the first things you must do when get your CoverDisk is make a backup copy, then put the original CoverDisk away for safe keeping. As a rule you should also do this with the majority of your software collection.

How to make a backup

To copy the entire CoverDisk, load up your Workbench disk, then either click once on the CoverDisk icon and select Duplicate, or select Copy from the Workbench menu, or open CLI/Shell and type:

```
DISKCOPY FROM DF0: TO DF0:
```

When prompted, put your CoverDisk (the source disk) in df0: and be ready to replace it with your blank disk (the destination disk). Follow the Amiga's on-screen prompts until the disk copy is completed. Now put the original away in a safe place and use your backup.



Copying individual files

You might at some point want to copy a single program from a CoverDisk to your compilation, Workbench disk or even your hard drive.

To do this you'll need the COPY command. As most CoverDisk programs are stashed away in their own directories, the quickest way to copy a program is to copy the whole directory at once. Use the command:

```
COPY {directory} TO {newdisk} ALL
```

where {directory} is the full pathname of the directory you wish to copy, and {newdisk} is the name of the disk and directory into which it will be copied.

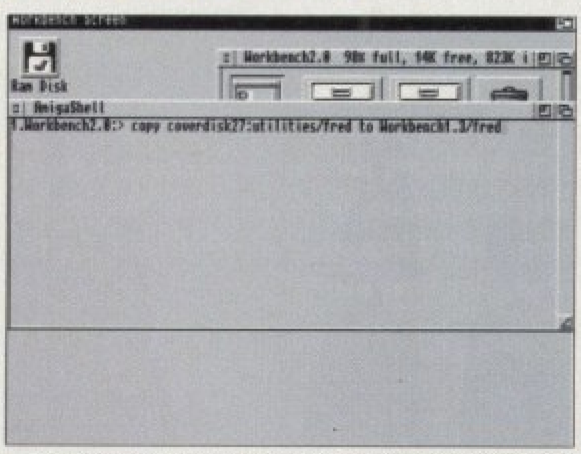
For example, if you wanted to copy a utility called FRED from CoverDisk 27's Utilities drawer to a directory called FRED on your Workbench disk, you'd type:

```
COPY COVERDISK27:UTILITIES/FRED TO WORKBENCH1.3/FRED ALL
```

Alternatively, you can click once on the FRED directory icon and drag it across to the new disk's window. This has the advantage of creating a new directory for you and copying the icon as well.

Once you have moved a particular program to where you require it you could experience some problems running the program. This is sometimes caused by the program not being able to find files which it needs to run.

A good example is the text files on the CoverDisk. These have been crunched using PowerPacker, so when you try to copy them to another disk and then try to read them you can't unless you have also copied the Powerpacker library into your LIBS drawer.



So if you have copied a program from the CoverDisk to your Work disk or hard drive make sure you also copy any other files the program requires, ie fonts, libraries, device drivers and Ccommands.

De-archiving

Occasionally we have so many programs to fit onto the CoverDisk that we have to archive them. Archiving is where we take the entire contents of a disk and compress them into one file which is much smaller, giving us space to fit more programs onto the disk.

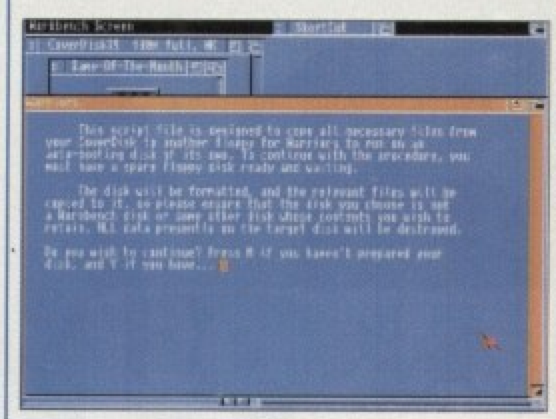
Dearchiving programs which are on the CoverDisk is a very simple task. If a program has been archived then you will need a blank disk to dearchive it onto.

Say we have archived a program called FRED. You simply double click on FRED's icon, and will be asked if you have a blank disk ready to dearchive to. Type "y" or "n" accordingly.

Your computer will then copy the archived file into its memory and ask you to insert your blank disk. It will proceed to format the disk, and will then de-crunch the archived file onto your blank disk.

Once this has been done you can simply reboot your machine with the disk which contains the dearchived program on it and then use the program as instructed in the CoverDisk pages.

Note that if you have a Workbench 2 or upward machine you must boot with the CoverDisk write-enabled to perform the dearchiving process.





Workbench 3

If you have a Workbench 3 machine, don't worry – most if not all of the programs on the CoverDisk will work on your machines.

If the program is specifically designed to work with Workbench 3 then you may have to copy the program to your hard drive or Workbench disk using the process described earlier on this page.

Amazing AMOS



AMOS Professional Compiler

Simple-to-use AMOS Pro Compiler gives your creations a kickstart, it compiles in seconds and can squash them by up to 80%. This is the updated and considerably improved version of the original AMOS Compiler.

AMOS Professional Compiler includes:

- 200 more commands than the original AMOS Compiler
- Update to the latest version of AMOS Professional
- Comprehensive user guide, plus technical support back-up

Among many superb features, AMOS Professional can help you to compile programs using the intuitive user interface and compile Easy AMOS, AMOS and AMOS Professional programs using the stand-alone compiler from the Workbench. It can also help you to write programs incorporating many calculations which can run up to five times faster. On top of all this you can use a special AMOS library to create small compiled files.

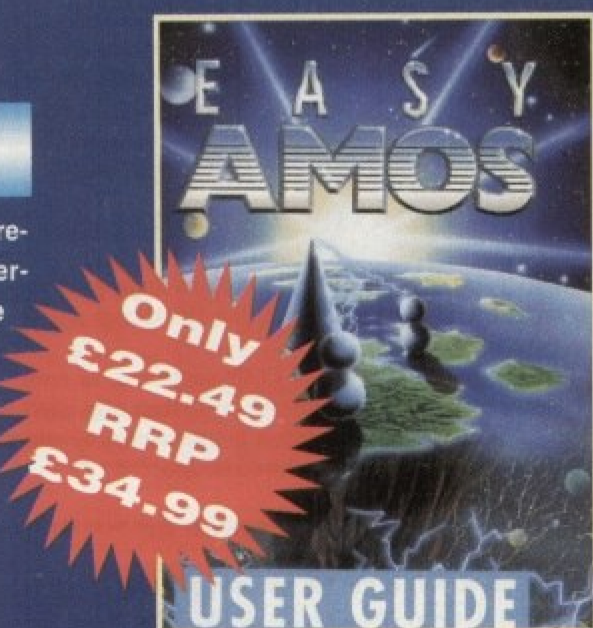
Easy AMOS

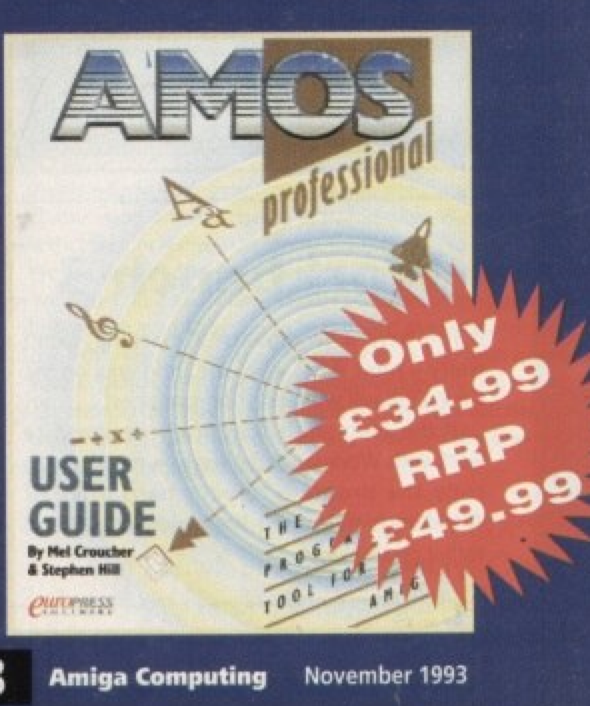
Bring your Amiga to life in the first steps to programming with Easy AMOS, a friendly, easy-to-use beginners guide to programming. Easy AMOS will quickly teach you how to:

- Produce impressive graphical effects
- Create and animate colourful objects
- Scroll large text across the screena
- Make your Amiga actually talk to you
- Add exciting music to your creations

Easy AMOS is packed with ready-to-run, carefully explained programs. You'll quickly understand how they work, and then use the same ideas in your own programs.

This brilliant package also shows how to create entertaining programs in next to no time – and it includes three games entirely created using Easy AMOS.





AMOS Professional

All programs written using earlier versions of AMOS and Easy AMOS can be loaded into the vastly enhanced AMOS Professional. This latest package includes more than 200 new commands, taking the total up to well over 700. AMOS Pro is essential for the more experienced programmer, and includes a 650 page manual to get you started.

Unique feature is the on-line help which provides details on the command at the cursor position – and another click takes you to a thoroughly documented working example featuring that command.

AMOS Pro also features:

- A new editor featuring dropdown menus, keyboard macros, and more
- IFF animation playback
- AREXX support
- MED music library support
- Two example disks

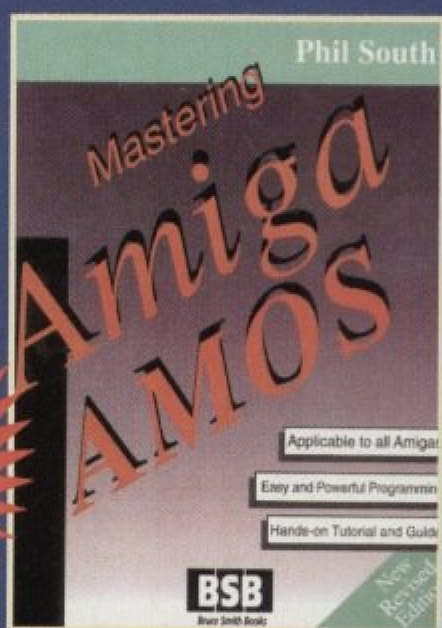
s offers..

Mastering Amiga AMOS

This superbly written guide is suitable for anyone using AMOS, Easy AMOS or AMOS Professional. If you are a novice programmer or looking for the next step after BASIC then AMOS and this step-by-step tutorial is for you. Phil South provides a fascinating introduction, looking at all the main features, with plenty of example code for experimentation. You will find Mastering Amiga AMOS a handy reference and source of programming ideas.

This enlarged and revised edition covering all aspects of AMOS programming includes tutorials on:

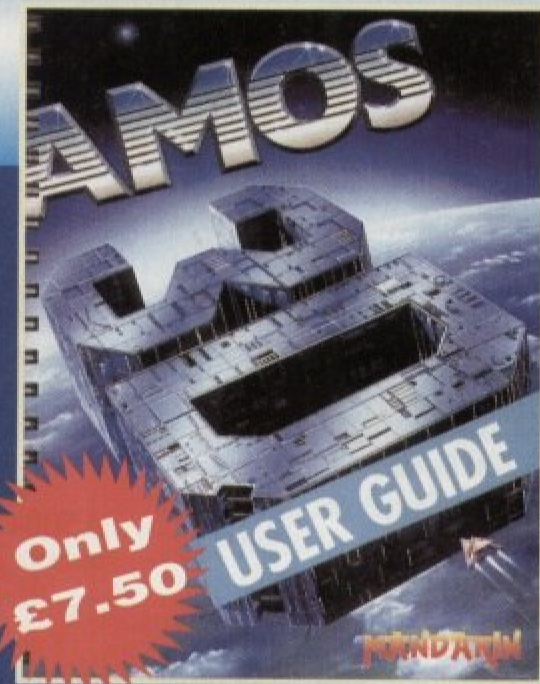
- Windows, text and menus
- Screens, sprites and blobs
- Icons and screen blocks
- Music and sounds
- Object music
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Only £14.95 RRP £19.95

To take advantage of any of these AMOS offers simply fill in this order form and send it to AMOS Offers, Europress Enterprise, Europa House, Adlington Park, Macclesfield, SK10 4NP. If you are paying by credit card you can phone 0625 878888 between 9am and 1pm or fax 0625 850652

All of these packages require 1Mb of RAM



AMOS 3D manual

Now that you have the complete and fully working AMOS 3D software on this month's Amiga Computing CoverDisk, why not make the most of it with our special manual offer. It's yours for only £7.50.

With over 100 indispensable pages, this comprehensive ring bound manual will really help you to get to grips with AMOS 3D, giving you all the guidance you need with the object modeller, the tools and programming.

- Please note that this is the original manual, not a photocopy.

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A third world

Paul Austin provides the ultimate buyers' guide to all things 3D

With the Amiga moving inexorably towards a 32-bit architecture across the entire range, power applications are now becoming accessible to all. In the past 68000 machines meant complex modelling was strictly the domain of power users – or the very patient. Now that's all changing and with careful modelling and intelligent scene design even a basic A1200 is capable of respectable rendering times and photo-realistic end results.

With the plethora of paint packages and assorted art-oriented programs already flooding the market, what's the big appeal of software which can sometimes take hours and even days to generate such results?

In short, the answer is total creative freedom and the ability to control every aspect of the image or animation you design. On a more esoteric level, raytracing provides the tantalising first look at the virtual world which in time will become the new frontier of human experience.

If you can forgive the pseudo-intellectual ramblings it's true there's definitely something vaguely magical about generating your own 3D universe.

Any conventional artist usually has both the imagination and the physical skill required to turn the ordinary into the exceptional.

This obviously isn't a problem for those who have an abundance of both – alas that's where most of us encounter the abyss which lies between the mind of an artistic athlete and the physical skill of a couch potato.

Fortunately, when it comes to raytracing, the software usually takes care of the physical skill by drawing, colouring and shading your creations while the user need only supply the imagination.

However inspiration isn't the only thing needed to create a great image. For a start there's the sometimes painful process of mastering three dimensions – not an easy task, especially when you're forced to confront the problem through a strictly 2D window.

A perfect illustration of the clash between a 2D interface and a 3D model is the mouse. Although ideal for navigating the 2D world of a paint package, the extra dimension essential to raytracing can really highlights its limitations.

By nature a mouse is strictly a 2D animal, perfectly happy to slide back and fourth or left to right. But lift it off the mat and it's game over. As a result, one of the three dimensions always alludes us, hence the need for instant access to all three.

In certain cases this means the software will provide a tri-view with each window looking directly along its own dimension, while others offer a single window – sometimes in the form of a perspective – which can toggle between the various dimensions via hotkeys.

AWARENESS

In fact, awareness of the X,Y and Z is essential to almost every aspect of 3D modelling. Aside from simply building models, creating realism often necessitates the use of brushmaps, textures and so on, all of which require accurate placement – again, spacial awareness is essential in order to place the element you want exactly where it's required.

Assuming you've mastered the necessary modelling and mapping skills, the artistic battle continues. Aside from imagination and modelling talent you'll also need to double-up as a lighting engineer as well as taking to the director's chair, placing objects, deciding camera positions, applying your lighting talents and specifying the movement or transformation of every element within the scene.

Although it's true that the physical skill has been taken on by the raytracer, it's more than made up for by additional mental effort on the part of the user.

If you're planning to attempt raytracing, don't make the assumption that the software will in some way do all the hard work on your behalf. Like any artform, mastering the discipline is a labour of love which takes just as long as any other to perfect.

With the huge array of renders and raytracers flooding the market picking the right package has become increasingly difficult. A factor that's been compounded by the degree of excellence inherent within all of the recent releases.

In a nutshell the choice boils down to a difference between ease of use, realism and animating potential. Obviously there are other factors such as speed and flexibility but these key factors invariably tend to sway the average buying decision.

Imagine2

To be honest, I must admit to being biased towards Imagine courtesy of prolonged use. However I've also had the opportunity to use every package on the market – which I suppose makes my allegiance an even greater testament to the staying power of this truly excellent package.

Like many modern programs, Imagine employs a modular design with various editors each handling a specific aspect of the design process.

For the newcomer this can be a rather confusing approach but in time an underlying logic is revealed, thereby making the program one of the most intuitive raytracers on the market

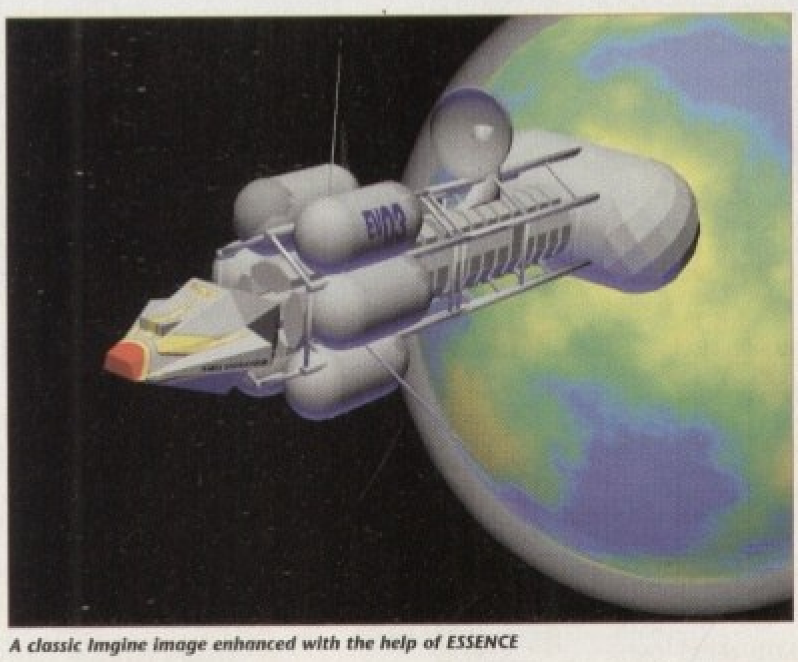
However it must be said that Imagine2 isn't without its faults, most obvious of which is the program's fairly poor anti-aliasing.

In addition, the accompanying manual is also a disappointment as it potters along in a narrative rather than informative style thereby making comprehension of this already complex and somewhat idiosyncratic package even more daunting.

Still, even with these drawbacks Imagine2 offers a degree of modelling, mapping and animating freedom that can only be matched by Real3D v2 – a program which is at least three times



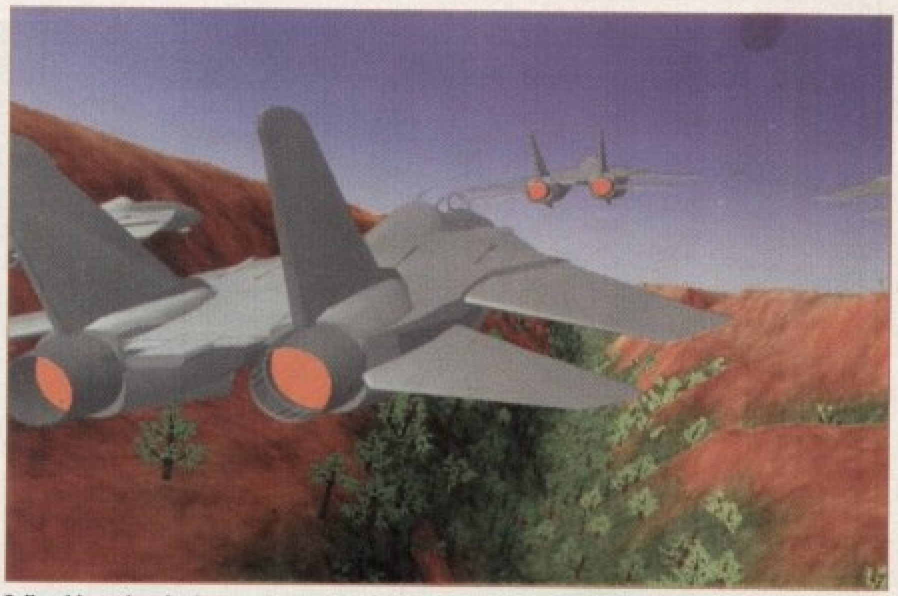




A classic Imgine image enhanced with the help of ESSENCE



AC's angry clown created with Imagine 2 and the mathematical textures of Essence



Caligari in action, basic mapping but the best interface in the business

as expensive and much more difficult to master.

In a nutshell, Imagine2 is probably best described as the ultimate enthusiast's package, capable of startling animation and photo-realistic imitation of anything you care to create.

However be warned, there's a rather steep learning curve that demands dedication, but in return the package can provide award-winning results.

Caligari 24

Unlike the other packages, Caligari is a renderer, and not a raytracer. This simply means that objects will reflect the sky and the ground but not other objects in the scene. However Caligari does offer an environment mapping system which can emulate rather than replicate the efforts of a true raytracer.

In practice, the end result is that real world emulation doesn't match up to the others – but to be fair that isn't what Caligari is intended for.

In short, Caligari is the ultimate corporate animation generator. Thanks to the program's relatively basic mapping and rendering options, it will never match up when it comes to clever images.

However that's probably a fair price to pay for the best modelling and animation environment on the market. If you're purely interesting in graphics that will animate beautifully but always look computer generated, Caligari is the perfect combination of ease of use and power.

The actually modelling process is by far the most intuitive



A great example of Caligari's modelling potential and its animation skills are even more impressive

with a truly excellent working environment combined with a large collection of tools, most notable of which is freeform deformation, a process which allows organic shapes to be extruded from basic primitives extremely easily.

As for animation, the package is again unsurpassed when it comes to ease of use. Unlike most of the opposition, Caligari employs a hierarchical anim format which allows very easy construction of complex animation with total control over every aspect.

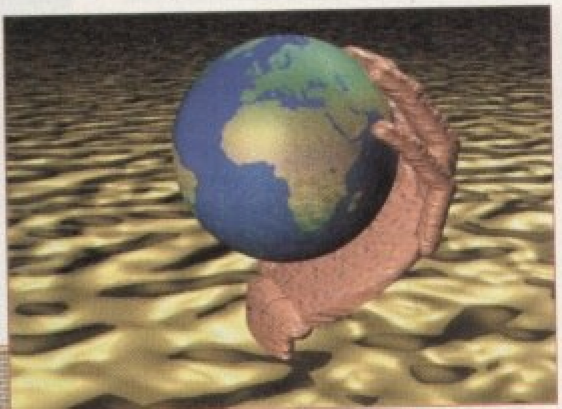
Real3D Classic

Formerly known as Real 3D Turbo – prior to the release of Real3D v2 – Real3D Classic was the main contender against the onslaught of Imagine2. Being a convert from Real3D to Imagine, I can see the relative benefits of both systems.

Although each is employed by professionals with equal relish I'd say that Imagine would be more to the taste of the purist who wants believability and doesn't mind investing time and effort to get it, while Real3D Classic provides a somewhat easier method of producing ➤



Real 3D version 2 at it B-spline best



Although basic in comparison Real Classic can still produce stunning results



Yet another incredibly crisp image from Real 3D version 2

very high quality corporate logo material, which although excellent can lack the subtlety of a similar Imagine image.

The primary cause of this slightly artificial look is Real's dependence on primitives, a feature which tends to lend to a slightly logo-esque look to the final image or anim – a factor which isn't helped by the relatively basic mapping options which don't allow the multiple maps of Imagine, Aladdin 4D or Real3D v2.

Animation is again slightly lacking in comparison to Imagine, primarily due to the added flexibility offered by the Cycle editor within Imagine.

However it must be stressed that Real Classic is by no means basic when it comes to animation and when this is combined with the best anti-aliasing on the market, the program's appeal for business applications is pretty hard to ignore.

Aladdin 4D

Although very respectable as an all-rounder it must be said Aladdin doesn't justify its rather inflated asking price of £255 – a figure which is roughly double that of both Imagine2 and Real 3D Classic.

In addition to the problem of finance, modelling is fairly basic in comparison to its counterparts with the most damning blow being struck by the total lack of freeform editing – an option offered by all its counterparts.

On the animation side it's pretty much the same story with good but not spectacular results which lack the intuitive touches offered by Caligari and to a lesser extent Real and Imagine.

Having said that, Aladdin isn't without strong points, the most notable being the generation of gases – a feature which can produce very impressive static and animated images. However, as seems to be case throughout Aladdin there is a compromise – which in the case of gases is extremely slow rendering.

Continuing in an animated vein it, must be said that mapping isn't one of the program's faults thanks to an unlimited number of textures which can be morphed and animated as and when required – a feature which can only be matched by Real3D v2.

All in all, the bottom line points to a pretty good package which unfortunately suffers badly when it comes to value for money when compared to the majority of the opposition.

Real3D v2

Although the package is easily the most powerful program around, it's very much an acquired taste, which beginners especially may not find to their liking.

Even with the imminent release of Imagine3, it's almost certain that Real3D v2 will remain the most technically advanced package on the market.

However its complexity is something which haunts the new Real. Unless you're very well versed in the finer points of raytracing and boast at least a working knowledge of programming and higher mathematics, Real3D v2 can be very difficult to handle.

To be fair, the quality of output and overall potential of the program is spectacular with some truly amazing animation tools which can make solid objects swim like fish or bowling pins scatter in accordance with the laws of physics.

If you have the £400 asking price, modelling experience and the six months needed to master the package, it simply out-guns the opposition. The question is: Do you really need that kind of power?

If so, will the program let you apply it?

Support software

Although all of the programs listed provide various utilities for converting 2D images, importing fonts, playing animations and so on there's a booming business in 3D support.

As mentioned earlier, actually modelling objects can be a tricky and time-consuming. However with a huge number of raytracing enthusiasts worldwide all beavering away, there are a lot of models already out there.

If you have access to a modem, the door to a world of free-ish objects is wide open. Most bulletin boards have dedicated 3D file areas full of hints and tips and more important large object collections, all yours for the price of a phone call and perhaps in exchange for uploading some of your own creations, in order to achieve the necessary upload ratio.

If you don't have access to a modem it's worth a close look through the PD libraries as a few companies specialise in 3D modelling and offer a huge repertoire of objects to suit a wide variety of raytracers and modellers.

Pixel 3D Pro

In some cases you may come across objects that will be in your raytracer's proprietary format. However, if not some form of conversion is essential. In such circumstances, Pixel 3D Pro is the ideal tool, offering a conversion process enabling the vast majority of programs to share their creations.

However, be warned – Pixel Pro isn't without its faults and will quite regularly overlook vital parts of an object during a file conversion leaving gaping holes which need subsequent repair.

In addition to object conversion, the program will also convert 2D images into 3D – with an extrusion depth and style of your choice. Admittedly this may seem at odds with the argument that 2D drawing skills aren't required for raytracing, but sometimes 2D graphics can make all the difference to a 3D image.

A perfect example is a poster on a virtual wall or perhaps a label around a can of beans – without the assistance of brushmaps, realistic results would be almost impossible within most packages.

In the case of Pixel 3D Pro, 2D drawing skills or perhaps scans could be used to make a very com-



Imagine3

Hot on the heals of Real3D v2 comes the long awaited release of Imagine3. Although rumours have been floating around for some time, it appears the package is almost ready for the sticky mitts of the eager masses.

Apparently release has been delayed because the authors were hard at work on a PC version which is now shipping. With the PC obstacle removed, attention has turned once again to the Amiga, and if all goes to plan you should find the definitive review in next month's *AC* – but for the time being, whet your appetite on the new features...

One of the biggest frustrations when setting up an Imagine scene is the inability to move the camera in real-time thereby avoiding the guesswork suffered at present. This annoying limitation has now be replaced with a real-time camera view, which can even transform your interactive adjustments into a smooth spline path for use within animations.

Like Real3D v2, Imagine3 promises bones and Kinematics as part of its animating repertoire. Thanks to bones, objects can now be animated without the need for joints – while kinematics provide real world emulation as connected objects interact.

An entirely new object makes its debut entitled the Font and Image Editor, designed specifically for the flying logo fraternity. As well a normal and Compugraphic fonts, PostScript is also supported with B-splines providing facet-free end results.

Another big improvement is brush and texture tracking which allows textures to stick to their polygons and not just simply slide over the surface during scaling, morphing and so on.

IMPROVEMENTS

At last a proper skin that will actually appear part of the object it surrounds! Although not a problem for the beginner, the inability to access individual objects within a group in the stage editor is a real pain when animating.

Fortunately this has also been revised in the new version – a small but hugely significant update for serious animators.

Yet another Imagine niggle appears to have been put to the sword thanks to motion graphics, a system capable of controlling speed within a path.

In the past, acceleration control was strictly limited to the beginning and end of a path, now control can be applied throughout the flight/movement.

The available modelling tools have also seen some additions in the form of deformations such as twist, taper, bend and shear – all old news in relation to Real3D, but nevertheless a welcome addition to Imagine3.

Yet another long awaited feature is the inclusion of macros – which again have long been a part of Real3D. However their presence adds the finishing touch of automation to Imagine's excellent collection of modelling tools.

On the output side there have been some fairly dramatic improvements, most important of which has to be much improved anti-aliasing – an element of the program that's been the bane of earlier versions.

As far as the interface is concerned it appears most things will remain fairly similar to its predecessors with the exception of a new row of user buttons along the bottom each editor window.

The Forms Editor has also seen some much-needed attention in the form of magnetism, plus there's some brand new post production tools, support for sound, field rendering, a particle animation system, Alpha channel support, depth of field plus an infinite number of maps per object.

In short, it's a truly professional package that demands as much time as it does cash – definitely not recommended for beginners.

Hard facts

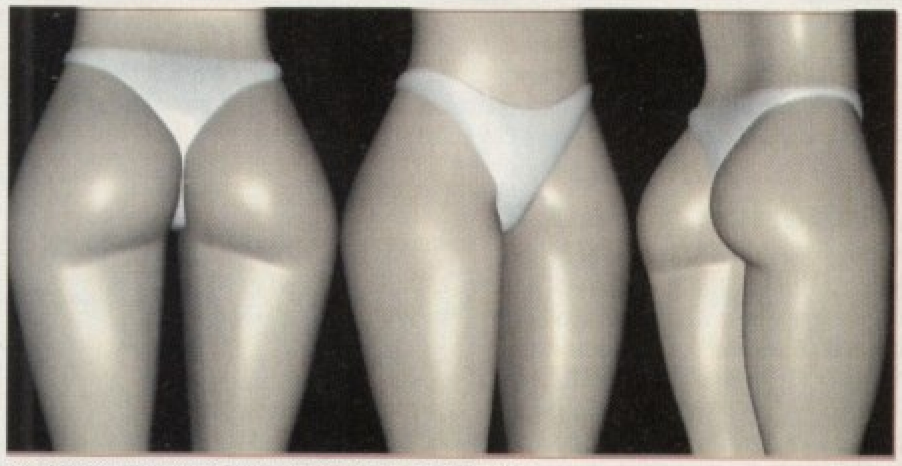
During the intro, the move towards 32-bit architecture was heralded as opening the raytracing door to all with an A1200 or above.

In fact, although a vast improvement on the old 16-bit machines, the A1200 does lack one element for successful raytracing.

As standard the A1200 doesn't come with an FPU or maths co-processor. Without an FPU any raytracing, even on a fast CPU, will take much longer than is necessary.

Raytracing by nature is entirely mathematical, requiring enormous number crunching power in order to attain reasonable speeds, and as a consequence adding an FPU to your machine would be money well spent.

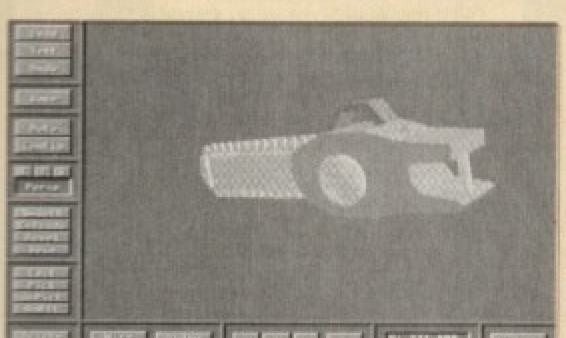
In addition, storage can be almost as



Possibly the most graphic example of super smooth B-splines – but be warned lots of splines mean very long rendering times

Support software

plex modelling job much easier. For example to model the British Isles would be painful to say the least using polygons or Boolean operations. However thanks to Pixel 3D Pro, the shape could be drawn or more likely scanned, converted into a suitable format and extruded automatically, complete with the colouring of your choice. A user-defined bevel could even be applied on the edges to produce that glossy, corporate look.



It's certainly true that most raytracers offer at least some 2D to 3D extrusion tools but none match the flexibility on offer from PixelProXL. A perfect example is the ability to interrogate the colour information of a 2D IFF and then automatically scale the extrusion according to the relative brightness of the shapes within the image.

A good example is a model created by our editor Stevie Kennedy, who required a myriad of buttons as part of a control panel. In any raytracer creating, sizing, copying and placing each individual element would have taken an age. Thanks to PixelPro the whole process was complete in a matter of minutes, requiring only the most rudimentary drawing skills.

Alternative Textures

Although objects are the most obvious commodity when it comes to raytracing, backdrops or brushmaps are also very useful to add that touch or realism to your renderings. At the forefront of texture business come those loveable chaps at Alternative Image with their collection of high quality, 24-bit scans featuring old favourites like marble, wood, sky and so on.

For Real users the collection also has the added bonus of some excellent tutorial files – with graphic examples – showing how to get the very best from Real3D Classic, including a guide to creating the mysterious Real3D water effect.

RaceTrace

Although it's a fairly elderly package, Alternative Image have limited stocks of a more

Support software

basic variation on the PixelPro theme entitled RaceTrace. Although a tad rough and ready, the package offers similar 2 to 3D IFF conversion with the option to extrude according to colour – just like PixelPro.

However it must be stressed RaceTrace requires more effort on the part of the user with strictly lo-res IFFs often requiring much more editing to avoid the dreaded jaggies.

However, during the long editing process you can always console yourself with the thought of all the money you've saved over buying Pixel Pro – and just like its pricey but powerful counterpart, RaceTrace supports all the major packages and 3D file formats.

PowerFonts

Another impressive 2 to 3D converter entitled PowerFonts offers an alternative to the pricey talents of Pixel Pro, but as the name suggest the package is restricted to font conversion.

Like 2D extrusion, most modellers support some form of font conversion, however very few do a sufficiently accurate job for commercial use.

Powerfonts, however, provides arguably the best font extrusion, bevelling and italicising options available thanks to a no-nonsense interface that does the job without the whistles and bells offered by other programs.

Although I've only had access to the Real3D Classic version, support is planned for the majority of raytracers and should be available by the time you read this article.

Texture City

If the Alternative textures isn't enough, the Texture City collection offers an even wider range of textures with literally hundreds of images all in 736 x 580 severe overscan.

The collection is available on disk in various sets with approximately 20 images per set. Each set is shipped as 24-bit Jpegs with a Jpeg-to-IFF decompresser included.

In addition a Browser allows miniature previews of the entire collection. Although rather pricey, the images are excellent and more importantly build into a varied library encompassing animal, earth, FX, rock, marble, granite, metal, scenic, textiles and wood. If you're working commercially Texture City could prove invaluable.

Essence 1 and 2



Without doubt the best third-party support has to be that for Imagine, with arguably the most exciting add-on being the Essence collection of mathematical textures. Unlike brushmaps the Essence textures can be edited to produce variations on a theme.

Better still, thanks to their mathematical basis they never pixelise, no matter how close you go in on the image. In addition there's a variety of styles including both bump and altitude maps – again all completely user definable. In short, if you're serious about Imagine, Essence – in both its forms – is an absolute must.

CycleMan

One of the great mysteries of Imagine is its rather idiosyncratic Cycle Editor. Although immensely powerful when mastered, it can be very daunting for the beginner.

Because cycle objects aren't essential for basic animation, the whole area of creating cycle objects does tend to be overlooked. As a consequence, CycleMan offers not only a complete human model but also an insight into the finer points of creating your own objects.

Although a bit pricey, it does offer a useful pool of body parts as well as complete running and walking cycles which can be dropped directly into your scene.

Understanding Imagine 2

Alongside Essence in the essential Imagine add-on list comes Steven Worley's excellent *Understanding Imagine 2* reference manual. One of the biggest hurdles for any Imagine newcomer is the rather confusing manual, hence the release of Steven Worley's masterpiece.

Not only does it describe ever feature of the program but also offers hints, tips and design strategies which allow you to get the very best from your investment.

If you've got Imagine, get a copy of *Understanding Imagine 2* before anything else – it will save you months of frustration.



More impressive output from Real 3D version 2 – created by Henri Bujko

big a problem as speed, hence the need for a hard disk – in fact many raytracers will only operate from a hard disk.

On AGA machines there's no real need for a dedicated display device but having said that almost everyone will need some form of image processing.

In this area there's a wide choice with an ADPro and ProControl combination being the ideal choice – especially for would-be animators.

If however you're more interested in statics, either ImageFX or ImageMr are ideal being a good deal cheaper while still providing an impressive array of special effects and processing options.



Real Classic fights back with an even more complex image – courtesy of Henri Bujko of Alternative Image

Contacts

Product	Price	Available from	Tel
Caligari	£299	Amiga Centre Scotland	0896 87583
ImageMr	£175	Amiga Centre Scotland	0896 87583
Real3D v2	£370	Alternative Image	0533 440041
Real3D Classic	£100	Alternative Image	0533 440041
Alternative Textures	£40	Alternative Image	0533 440041
Texture City	£100	Alternative Image	0533 440041
PowerFonts	£90	Alternative Image	0533 440041
RaceTrace	£90	Alternative Image	0533 440041
Aladdin 4D	£269.99	MicroPace UK Ltd	0753 551888
Pixel 3D Pro	£144.99	MicroPace UK Ltd	0753 551888
Understanding Imagine 2	£29.99	MicroPace UK Ltd	0753 551888
Essence 1/2	£49.99	MicroPace UK Ltd	0753 551888
CycleMan	£39.99	MicroPace UK Ltd	0753 551-888
ADPro/ProControl	£229 and £79	Silica Systems	081-309 1111
ImageFX	£199 incl VAT	Silica Systems	081-309 1111
FPU/RAM/acceleration	N/A	Power Computing	0234 843388

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Hanging on the telephone



So, you want to move into the 21st Century and be a part of the information age? Let comms guru Phil South give you a line on the best in Amiga comms hardware

Choosing a modem is tricky at best and downright hazardous at worst. It's not so much which ones you should be looking at, but a case of how little or how many facilities you need, or more accurately what you can get away with!

Sure a 2,400 baud modem is good, but do you need more speed? Do you need fax facilities? Do you need HST like you need a hole in the head?

It's not so much the size of your modem but how often you use it. If you're a real comms nut and get frustrated by the fact that most of the really hot items on BBSs take about 68 minutes to download at 2,400, then you need a fast modem and no mistake.

If you log on to one service once a month to read a few messages and download some small utilities and stuff, then obviously it doesn't matter what you have. Any old 2,400 or so will do.

But being very choosy myself and suffering from heinous phone bills, I decided to look at all the new sexy modems which are on sale for your Amiga right now.

In the Amiga market there are surprisingly few models available. Everyone seems to have ditched the small 2,400 modems, and even the Supra range is now practically a duo.

All the ads we looked at had the Supras, some had US Robotics, and fewer still had the Pace Linnet and Pocket jobs. But that was it! There is a good reason for this though.

A modem is a modem, and like so many technologies which have become so well developed, every modem pretty much functions the same and as reliably as another. So in the end its all down to if you like it or you don't. Some are more expensive, but offer better functions, others are cheap but also have a good turn of speed. Let's see what they're all about..

Supra 14,400

Supra Corp – £259.99

Although the Supra range are the best, this baby does need more than a little bit of tinkering around before it'll sit up straight and beg for its dinner.

Unlike almost every other Supra modem I've ever seen, this one doesn't run right out of the box. It plays silly buggers until you get all the settings right.

But once you do get it right it's a star performer. I particularly like the clarity of the speaker in it. You wouldn't really think that modems would be sonically enthralling, would you, but you'd be surprised what a great difference it makes to be able to hear exactly what's going on when you dial and connect to a BBS.

Sometimes you can diagnose a problem just by the sound of the tones, when

US Robotics Sportster

US Robotics – £339.99

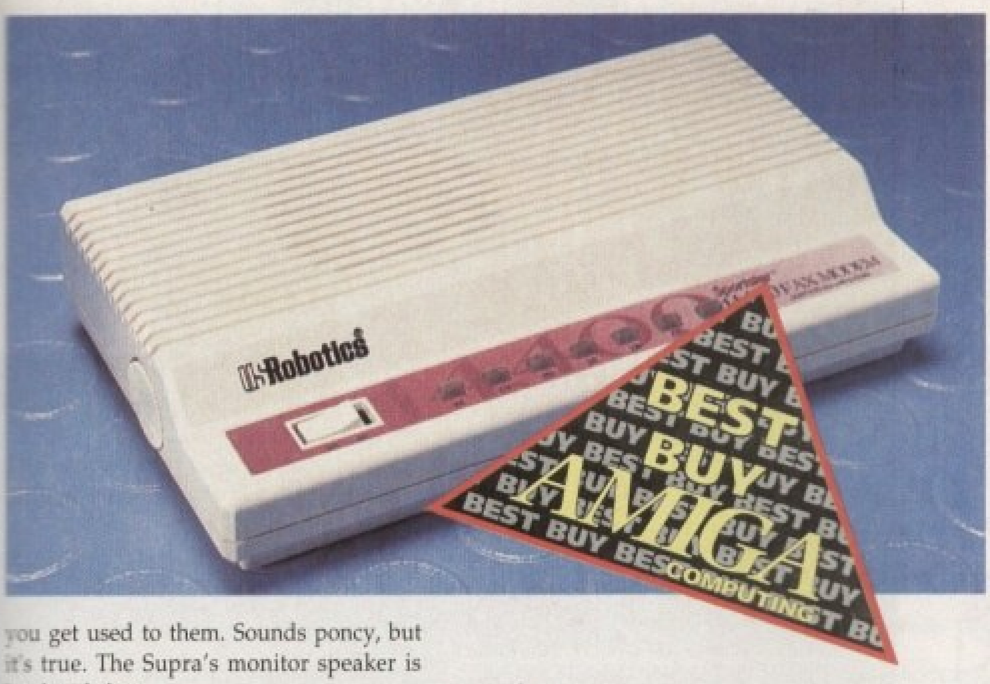
This is a classy and inexpensive top of the range modem. US Robotics also make some of the biggest and most expensive machines in the form of the Courier HST standard jobbies.

The Sportster was, I assume, made to fit the demand for a small, fast and cheap system, or at least as close to those ideas as US Robotics could muster.

I have to admit they've done a fine job. OK the case looks a little bit old tech, but that retro look may be your leaning. It brings to mind an Atari VCS games console of the late 1970s, albeit a quarter the size and white instead of fake wood. But the same idea is there.

I suppose the looks make it more distinctive, but the looks are nothing compared to the performance. Right out of the box, no twiddling with settings, a quick ATZ and you're there. The unit worked with NComm, Nicola, JRComm, and even ACCESS! didn't turn it's nose up, and I've always had problems of one sort or another with that program.

Having a modem bearing the US Robotics name is a bit like having a car with Ferrari written on the back. The name means top of the range, and if you buy this



you get used to them. Sounds poncy, but it's true. The Supra's monitor speaker is loud and clear.

Also a very nice little matrix of LEDs on the front tell you the speed that the unit is operating at and various other technical bits and bobs, like if you're connected at all. In standby mode the display says OK. Cool or what?

This is the top of the heap, the king of the pile, the cock of the walk, the dog's... (that's enough superlatives – Ed) Ahem. It's the cheapest and fastest modem money can buy.

V32bis 14,400bps modem
V42bis 14,400 fax
LED matrix display
Rating: 10/10

Supra Fax Plus

Supra Corp – £139.99

Although not as fast and sexy as the 14,400 jobby, this is still a very serviceable modem, and if fax is more important than modem facilities then this might be a better option for you. The unit does fax, the same as the 14,000bps model, but at 9,600bps, and does data at 2,400bps. So it's basically a bog standard 2,400 modem with MNP, not unlike my old machine, but it has the fax added on, hence the name.

The performance is what you'd expect from a Supra modem, being something of an industry standard these days on the Amiga. Nice loud monitor speaker, and small and neat casing. A top performer, especially using GPFax software.



V22bis 2,400bps modem
V29 9,600bps fax
Rating: 7/10

Pace Linnet 32

Pace – £339.58

A large box by modern modem standards, and in fact this one is something of a throwback to when modems were all very large clunky boxes about as big as an answering machine. It's big, it's expensive, but it does the job.

It's a V32 9,600bps machine and has the facilities you would expect. It's performance is good, if a little "steam driven". Big and clunky, this is not out of place in an office, where you need something a little more robust and larger than life (and also where price might not be a problem) but in the home or bedroom this is a monster, and that's about all you can say about it.



Big V32 modem only
Rating: 6/10

Jargon buster

download	*receiving a file from host computer or BBS via modem. The file is stored on your computer.*
fax modem	*a modem which also has fax capability, enabling it usually to send and receive faxes to any ordinary fax machine.*
upload	*sending a file to a host computer or BBS.*
V32bis	*a 14,000 modem will be called 32bis, which is the appropriate CCITT code.*
V42bis	*a 14,000 modem will be called 42bis, which is the appropriate CCITT code.*
voicemail	*like normal answering machines, only voicemail systems put messages for each person on the system in a separate place, so it's like a BBS email for voice messages.*

As this is meant for the PC market, the unit comes with PC fax software. If I had to choose between this and the US Robotics I know which I'd have. After the Sportster this seems a little slow, but if you're used to a 2,400 then this'll seem like being strapped on the front of a Jumbo Jet. It also comes in a V32bis 14,400bps model for £457.08.

Pace Microlin Pocket

Pace – £186.83

From one extreme to another. This Pace modem is actually made for use with laptops (and PC laptops at that) and this is reflected in its minuscule size.

Although it works fine with programs like JRComm, it's fussy about the program you use dropping the DTR line, as it uses this to turn itself on and off. A handy thing if you only want to buy one modem for two machines which are a fair distance apart, like Somerset and London.

It's battery powered so if you want you can just slip it in your pocket and wander ➤

device that's what you've got. It's more expensive sure, but you gets what you pays for. This is the one they're going to have to send the boys round for. I may superglue it to my desk...



V32bis 14,400 modem
V42bis 14,400 fax
retro look
Rating: 10/10



off to another location and use it with another Amiga. It even comes with a sexy little black leatherette protective pouch so the unit won't get scratched going in and out of zippered pockets.

The machine comes with fax software for a PC, which is no good to you of course, but you can run it using GPFax or another generic Amiga Fax proggy. There is also a V32bis version of this unit which runs out at £410.08. This has to be the smallest fax modem ever made.



V22bis 2,400bps modem
V29 9,600 fax
Rating: 7/10

Hardware verdict

Which is the one to go for? Well as I say it depends upon your needs, but if you want the best I'd say it's evenly spread between the Supra and the Sportster 14,400 jobs.

Both offer the kind of military standard blistering data speed which will see you into the next decade, both understand fax like a native, and both are nice and cheap at the moment. The Sportster has a nice cheesy 60s or 70s look to it, which may in fact be a point in its favour depending on your taste (I like it myself). If you want something which is more discrete, then the Supra is your man.

Both are equally small and user friendly, and the Sportster at least works right away straight out of the box without too much goofing around with your settings. Get the best price on either of these machines and they'll pay for themselves in a couple of months, no trouble.

Contact

Many thanks to all the dealers below who offer the items reviewed in this article at very reasonable prices (buy now while stocks last).

First Computer Centre, Unit 3, Armley Park Court, Stanningly Road, Leeds LS12 2AE
Tel: (0532) 319444

Evesham Micros, Unit 9, St Richards Road Evesham WR11 6TD
Tel: (0386) 765500

Power Computing, Unit 8, Railton Road,, Woburn Road Industrial Estate, Kempston MK42 7PN

Silica Shop Tel: 081-3091111

Comms software

NComm
Shareware – £30



There is only one comms engine of choice – NComm. The current version is 2.0, well worth paying up the shareware fee so you can at least get rid of those annoying requesters.

It's chock-a-block with state-of-the-art features like ZModem up and downloading protocols, and interlace and multicoloured modes for those of us with multisync monitors and flicker fixers.

The program is fast and colourful when it needs to be, and works with most modems righ out of the box. Some may need a little judicious twiddling with the Modem Setup menu, bu apart from that you can be up and running with NComm in about half an hour

There's also a simple Host program too, simply a script which allows you to quickly an simply set your Amiga and Modem up as a BBS.

Nicola
Shareware – £35



If you intend to use CIX, then you must have a copy of this program. Nicola is an off-line reader, or OLR, and it's the best one around for the Amiga. The program was written by "Tricky" and the shareware version works by the use of a simple licence system.

You email Tricky and he mails you back a licence. You use the program for 40 days fro free to see if you like it, and then after that you can send him money and he'll send you a complete licence which doesn't run out.

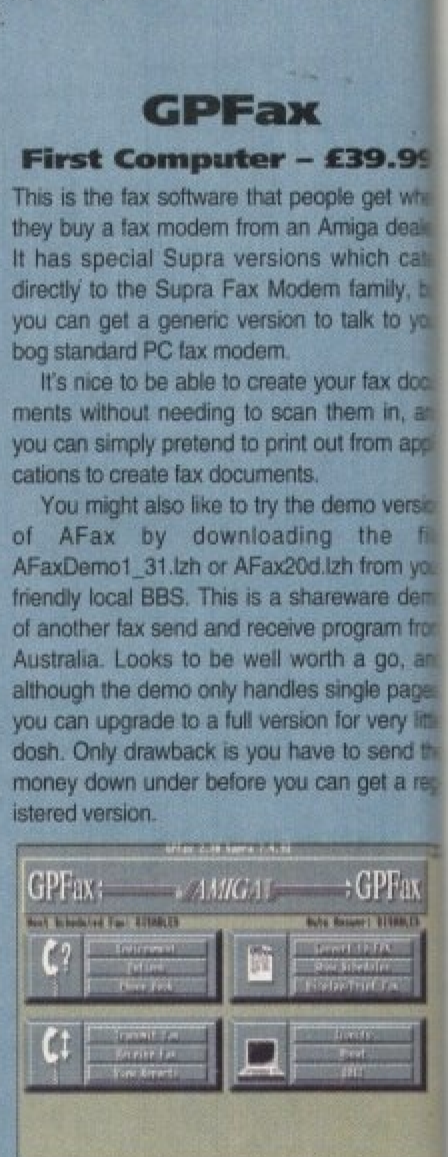
The program automates all CIX functions from downloading software to checking your mailbox and binmailing things to other CIX users. Areas which are not served are the Usenet and Internet gateways. To use them you'll have to use NComm and go in by hand. (See this month's Comms column for an in-depth review of Nicola – Ed).

GPFax
First Computer – £39.9

This is the fax software that people get whe they buy a fax modem from an Amiga deale It has special Supra versions which ca directly to the Supra Fax Modem family, b you can get a generic version to talk to yo bog standard PC fax modem.

It's nice to be able to create your fax doc ments without needing to scan them in, a you can simply pretend to print out from app cations to create fax documents.

You might also like to try the demo versio of AFax by downloading the fi AFaxDemo1_31.lzh or AFax20d.lzh from yo friendly local BBS. This is a shareware dem of another fax send and receive program fro Australia. Looks to be well worth a go, an although the demo only handles single page you can upgrade to a full version for very litt dosh. Only drawback is you have to send th money down under before you can get a re istered version.



GVPPhonePak VFX
GVP – £349

A bit of an oddity, this one. The PhonePak isn't in fact a modem, but is a combination voicemail, answering machine and fax machine system for your Amiga.

It's basically a card which fits into a Zorro slot and runs custom software to make your Amiga into a powerful communications system.

It's a fax, it's an answering machine, but it can also do that neat trick where it answers the phone and it says "If you want to send a fax press 5, if you want to talk to Phil press 6..." etc. OK, so you have to have your Amiga on all the time to catch your messages, but the messages are in IFF format so you can save them to disk and keep them if you like, which is something you can't really do without a sampler otherwise.



The quality from the phone is pretty good too, and you can also listen along to any messages as they come in, cutting in if you wish.

It's magical and it's only £350. It's a fax, it's an answering machine, it's a voice mailsystem, and it's a fax switch, which added together makes about £700-800.

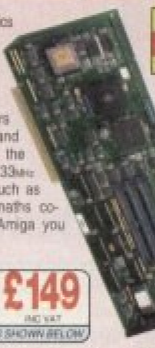
If you intended to get a fax modem for a small business and faxing is all you really wanted to do, then you might like to look at this instead, as the extra capabilities (and for the same price as many fax machines) make it very attractive and quite unique among Amiga comms products.

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Maths Co-Pro.	68882 included	68882 included	In 68040 processor
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Extras	SCSI	SCSI	SCSI Ser/Par
PRICE	£349 INC VAT UPG 0110	£699 INC VAT UPG 0430	£1299 INC VAT UPG 0740

*MIPS: Millions of instructions / second, a normal Amiga runs at .87 MIPS

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FOR AMIGA 500 AND AMIGA 500PLUS



The A530 is a unique combination of a hard drive, RAM board and an accelerator. Inside is a full Motorola 68030EC processor running at 40MHz making your Amiga faster than you thought possible. The A530, with a maths co-processor, is up to 300 times faster than a standard A500! The new processor and 32-bit SIMMs is joined by up to 8Mb of 32-bit RAM, which further enhances its performance. Features Include:

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- *High Speed DMA SCSI Controller Can Handle 7 Devices*

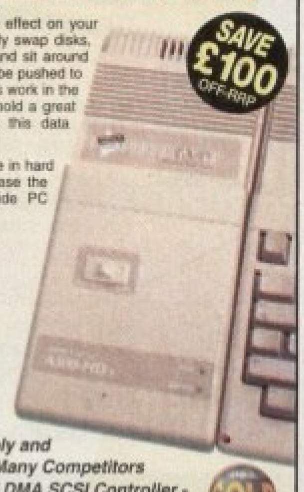
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A530 HARD DRIVE & 40MHz ACCELERATOR

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PLUG-IN HARD DRIVE
FOR AMIGA 500 AND AMIGA 500PLUS



A hard drive will have an immediate effect on your Amiga. Where you used to constantly swap disks, wait for files and programs to load and sit around waiting for disk accesses, you'll now be pushed to keep up with your Amiga! Hard drives work in the same way as floppy disks, but can hold a great deal more information and access this data much quicker.

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42Mb	80Mb	120Mb
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GRAPHICS CARD
FOR A1500/A2000/A3000/A4000



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IV24 inc VIU-S	IV24 inc VIU-CT
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G-LOCK ~~£349~~ £299 INC VAT - VID 2930

HARD DRIVE CARD
FOR A1500/A2000/A3000/A4000



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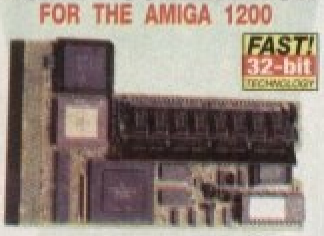
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FOR THE AMIGA 1200



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500

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Computer

With a minimum of equipment, you can turn your Amiga into a 16-track recording studio! Paul Overaa makes some tuneful inroads into the world of sequencing

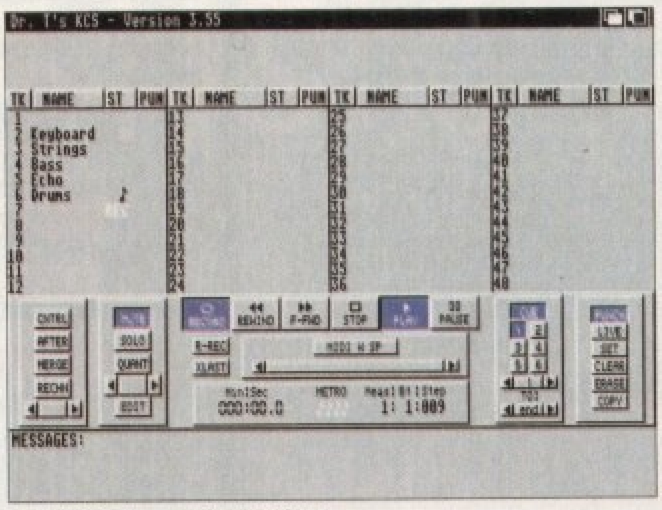
Despite the presence of a lot of competition (mostly from the Atari ST) the Amiga has continued to make inroads into the now firmly established area of computer-based music making.

There is already a growing band of professional Amiga sequencer users and Amiga users in general also seem to be taking more interest in sequencing.

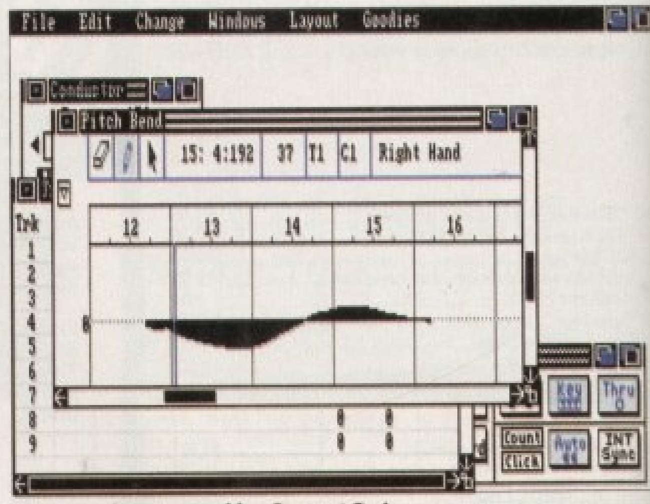
Sequencers, in case you don't know, work much like sophisticated tape recorders. They record musical note information, generated either by the Amiga's own alpha-numeric keyboard or by an attached piano-style synth keyboard and let you modify, combine and play back the stored material in virtually any way you wish.

Although nowadays there are several heavyweight, and needless to say expensive, Amiga sequencers suitable for professional and other serious use, there are also plenty of more affordable offerings which are perfectly adequate for most sequencing requirements.

There are, incidentally, some sequencing areas where you can even get suitable PD software to do the job.



Dr T's KCS is a pro quality workhorse sequencer and very highly thought of



MasterTracks Pro – good but Passport Designs pulled the plug on Amiga development!

TWO TYPES

The term sequencing doesn't exactly cover a multitude of sins but there are nevertheless two types of sequencer available on the Amiga.

Because the two types are so fundamentally different (in both use and purpose) it's worth spelling out the differences in detail...

Tracker-style sequencers are programs used to compose and create sound sample-based songs for playing via the Amiga's sound chips.

Most musicians would not, in the strict sense, regard these programs as sequencers at all but since the Amiga world seems to have adopted the terms "tracker sequencer" or "sample sequencer" for these types of programs who are we to argue?

Tracking is actually one of the oldest of the Amiga's music areas simply because right from the start programmers needed a fast, convenient way of creating music for games and demos.

One of the earliest utilities to appear was called SoundTracker and within a few years various other "tracker"-type clones had appeared. Being essentially programmers' tools, these programs adopted programmer-like conventions for creating music sequences.

Song descriptions tended to be built around crude lists showing the times and the pitches at which various samples should be played.

Editing facilities were relatively limited but while not ideal from a musician's viewpoint this tracker method of composing music rapidly became established in programming circles.

Over the years tracker programs have

Q and A on the sequencing scene

Q *How long can a Midi lead be?*

A The Midi standard itself says 15 metres, but a lot depends on the amount, and the peak densities, of the Midi traffic flowing through it.

In some cases, leads of twice the maximum suggested length have been found to work. To see how far things can be pushed with a particular Midi set-up you just have to experiment!

Q *Why is conventional Midi limited to only 16 channels?*

A It's because the Midi status byte, the part of the Midi message which contains the channel number, has only four binary bits available to hold the channel number information.

The limitation stems from the fact that four bits of a binary number can only represent 16 different values.

Q *I'm stuck with a synthesizer which seems to have a lot of weak sounding preset voices. Is there a way of making it sound better?*

A Doubling – where you take a track, duplicate it, and then change the Midi channel of the second track so that two different voices play essentially the same notes – can usually help. Shifting the start time of one of the pairs of tracks should further improve things.

Q *What's the difference between pre-record and post-record sequencer filtering?*

A Pre-record filters remove selected Midi messages before storing them as sequencer track events, so by the time a sequence has been recorded those messages are lost.

Post-record filters produce their effects by limiting which parts of the stored data are used. The big difference of course is that these "output only" filters do not prevent the original Midi messages being stored as track data. If, at a later date, the filter option is cancelled, any messages previously being suppressed by the filter would appear again.

Q *I play in a semi-pro band and am tempted to use an Amiga sequencer at live gigs. What sequencer package would be most suitable and what sort of snags are likely to occur in practice?*

A I'd recommend Dr T's KCS package for live work firstly because it is robust and secondly because it has some facilities that are especially useful for live gigging.

There's a special song mode that allows you to work with sets of up to 16 songs and this enables typical club song sets to be created that can be loaded in one go.

As far as snags with KCS goes there shouldn't be any – it really is an excellent package. You will get the odd Midi-related problem though (incorrect wiring up of Midi leads when rushing, the occasional faulty lead and so on) and should therefore carry spare Midi leads – and extra copies of your program and song data disks.

Almost all Midi problems you'll encounter will be trivial and easily solved if you don't panic!

Q *What are Midi messages?*

A Midi sends its message information using 8-bit units which the computer world call bytes. With Midi these bytes represent sets of standardised numbers whose meaning has been laid down by the Midi standard.

Some Midi messages consist of more than one byte and in this case the first byte, known as the status byte, identifies the general message class. The remaining bytes of that message are called its data bytes.

gone from strength to strength and nowadays the programs themselves are both more powerful and more user-friendly.

As well as using the Amiga's keyboard to enter note data a few, such as OctaMED Professional, let you link up a Midi synthesizer so that riffs/bass patterns and so on can be played in a more conventional way (which is much easier for a musician than bashing away on the musically meaningless Qwerty keyboard) and provide limited Midi output facilities.

SEQUENCERS

Now we come to the crunch. Tracker programs, even those with some Midi facilities, are certainly very useful but they are not (and should not be confused with) real Midi sequencers. Trackers, irrespective of how the original note data is entered, are primarily used to create music to be played using the Amiga's sound chips.

The Midi facilities are provided as an extra bonus for users who have some Midi equipment available. True Midi sequencers have a somewhat wider range of objectives.

Such sequencers are designed specifically to record, edit and play back Midi data and, even though a few Midi sequencers do allow you to play back songs using the Amiga's sound chips, the emphasis is on recording from – and playing back to – Midi equipment.



Music X is good value now that the price has dropped

studios

At the synthesizer end of such a system, Midi messages get transmitted when you do something – touch a control knob or press a note on a keyboard – and these streams of messages get transmitted at the Midi Out terminal.

When you connect a sequencer into the system it is able to read these messages and record what is going on as you play. Sequencers are not interested in the sounds being made, it's the Midi messages – which are essentially streams of numbers – that are important.

Irrespective of price, most Midi sequencers provide comprehensive editing facilities which will enable you to add and delete notes, cut and paste fragments of music and make key changes. You can even ask the sequencer to improve the timing of the music you have recorded.

MULTITRACK

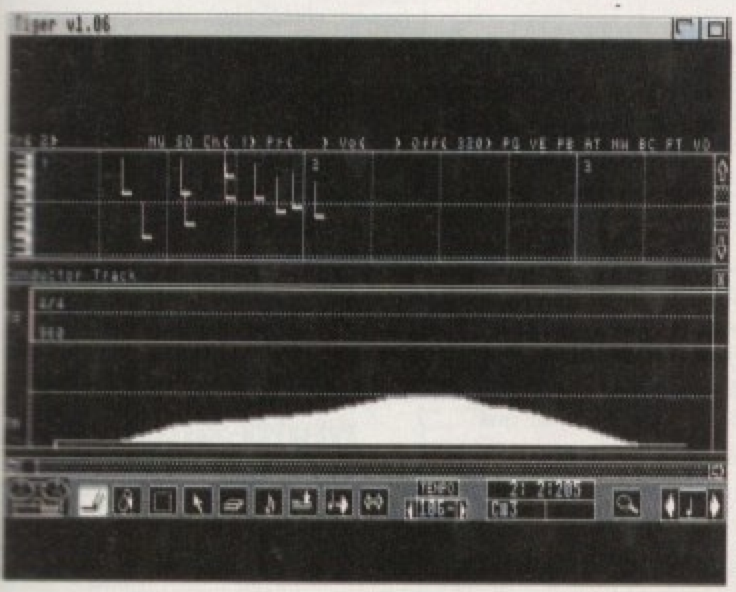
A great many sequencers adopt a tape recorder-style approach to Midi recording and playback operations and the analogy is a good one because, conceptually speaking, sequencers as mentioned earlier are very much like multitrack tape recorders – the main difference is that they record digital data rather than audio sounds.

Many sequencer packages make the analogy very clear by using displays containing buttons for playback, recording, fast forward, rewind, stop and so on just like conventional tape recorders.

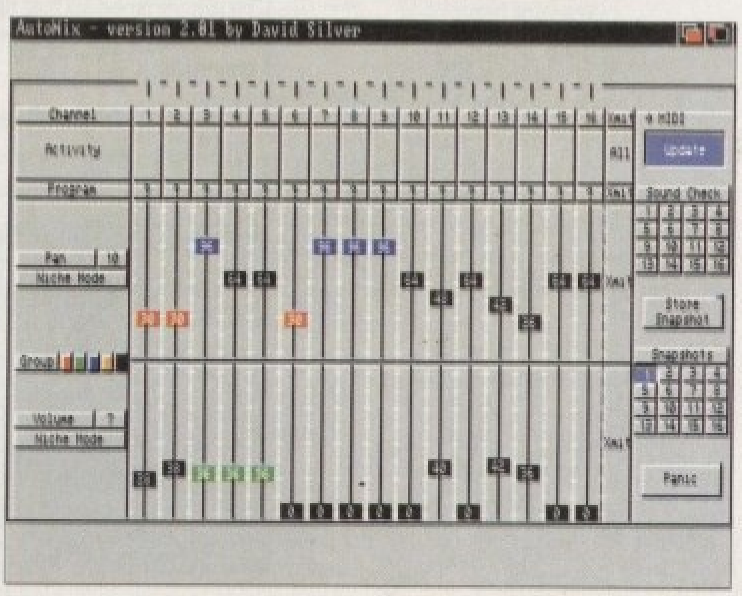
The following listings cover the sequencers which we think are either the best, the cheapest, or have some other saving grace (or peculiarity) that warrants their inclusion.

Please use our quoted prices only as a rough guide. In the current economic climate prices are changing almost daily and there are always special offers, discounts for cash and so on to be had.

Anyone spending money nowadays definitely has the upper hand, so make the most of it – after all one day the recession might end!



Tiger Cub has good editing facilities



Programmers like David Silver did much to enhance the Amiga's Midi standing

Midi hardware

Getting into real Midi sequencing is more expensive than basic tracker-style sequencing with Qwerty keyboard data entry because the Midi connection is essential, rather than optional.

In short, as well as the sequencing software itself you'll need a keyboard synthesizer and a Midi interface.

A low-end, budget-priced synth is likely to cost between £100 and £200, but if you hunt through the music magazine ads you can sometimes find second-hand bargains costing much less than this.

Even the cheapest of modern synths are quite easy to learn to use and, more to the point, most actually sound surprisingly good.

At these prices you won't get things like a touch sensitive keyboard or any of the other 'bells & whistles' found on more expensive synths but this is unlikely to matter unless you are a professional keyboard player.

One thing that is quite important, and it's worth spending a bit more to ensure you get it, is that the synthesizer you get is both polyphonic, which means capable of playing a number of different notes at the same time, and "multi-timbral" – able to play more than one voice (sound) at the same time.

ARRANGEMENTS

The reason for this is that song arrangements are normally built up by recording all the various instruments needed individually using different sequencer tracks and different Midi channels.

When you play back your recorded song data you'll normally want to hear all the recorded instruments playing together and in order to do this the synthesizer itself must be able to generate all of the required voices at the same time.

Connecting up a simple Midi system essentially means linking together a sequencer, synthesizer, and a Midi interface, and it couldn't be easier,

Firstly, connect the Midi interface to the Amiga's serial port connector. Then take one Midi lead from the Midi-Out of the synthesizer to the Midi-In of the Midi interface and connect a second cable from the Midi-Out of the Midi interface to the Midi-In terminal of the synthesizer.

Switch the Midi equipment and your Amiga on, load the sequencer program as per the manual instructions, and you'll be home and dry.

As you progress you'll probably be tempted to add sound expanders, drum machines, and all manner of other Midi-oriented goodies, but the basic set-up described above is more than enough to get you started.

Sequencer packages

Product/manufacturer:
Bars & Pipes Professional 2 – Blue Ribbon Soundworks
Available from:
Meridian Software Distribution
Price: £299.95

Details: Brilliant sequencer and music composition tool. Bars & Pipes has been specifically designed to be an open-ended Midi sequencer and in many cases adding new effects and expanding the sequencer's facilities is just a matter of adding some new B&P tool.

Product/manufacturer:
Bars & Pipes Junior – Blue Ribbon Soundworks
Available from:
Amiga Computing
Price: £3.25
Details: This cut down, but still very adequate, version of the Bars & Pipes sequencer was given away on the July 93 CoverDisk and back issues are still available.

Product/manufacturer:
Deluxe Music Construction Set – Electronic Arts
Available from:
Trilogic
Price: TBA
Details: Originally more of a music program for home entertainment than serious use but a new version due out any time may well be more powerful.

Product/manufacturer:
Harmoni – The Disk Company
Available from:
The Disk Company and various other sources
Price: £50
Details: Competitively priced Midi sequencer.

Product/manufacturer:
KCS Level II v3.57 – Dr. T's Music Software
Available from:
MicroPACE UK
Price: £278.99
Details: Package includes the KCS v3.57 sequencer, the Dr T PVG program and a Master Editor. Also provided are Tiger, the graphic editor; QuickScore, which allows the display and printing of sequenced music in traditional score form; and AutoMix, which lets you perform automated mixdown.

All of these components are integrated into Dr T's multi-program environment (MPE) which provides the framework for inter-module communications. The MPE system has eliminated the need for storing data in temporary files by allowing programs to communicate directly.

Product/manufacturer:
Master Tracks Pro – Passport Designs
Price: Originally £285
Details: We've included this entry simply because we get a lot of people asking what has happened to the Passport offerings (they had three sequencers... Master Tracks Pro version, a cut down Junior version and an entry level TRAX offering).
The fact is Passport pulled out of the Amiga sequencer market a couple of years ago to concentrate on sequencers for other machines!

Product/manufacturer:
MED
Available from:
Most public domain libraries
Price: Anything up to £5 depending on source
Details: An early PD tracker program. Still available but OctaMED is a much better proposition.

Product/manufacturer:
Music X – Microlllusions
Available from:
MicroPACE UK
Price: £59.99
Details: Sophisticated Midi sequencer that was originally over-priced. Now, after a number of price cuts, it represents good value for money. A new Music X package is expected to be released by Microlllusions but full details are not yet available.

Product/manufacturer:
Music X Junior – Microlllusions
Available from:
MicroPACE UK
Price:£34.99
Details: Cut down version of the Music X sequencer.

Product/manufacturer:
OctaMED Professional version 5.00
Available from:
Seasoft Computing
Price: £30
Details: OctaMED Pro is a tracker program which has its origins in the public domain tracker called MED. Over the last few years, as the package entered the commercial market place, it was given some major enhancements and the current version has become without doubt the best t racker program available at the present time.
Version 5.00 is incidentally only compatible with WorkBench 2.04 and later but earlier versions (including OctaMED 2 which has been given away on various cover disks) will run under O/S release 1.3 and upwards.

Product/manufacturer:
Overture – Desert Software
Available from:
Desert Software
Price:£79.95
Details: This package is rather different from most in that it adopts a traditional score-writing approach to Midi sequencing.

Product/manufacturer:
Pro 24 Amiga
Available from:
No longer available
Price: originally £285
Details: Another entry that is just here to set the record straight. This sequencer, based on the famous Atari ST Steinberg Pro 24 sequencer, appeared some time ago but, when it failed to have the same impact as the Atari version, it rapidly died!

Product/manufacturer:
Protracker
Available from:
Most public domain libraries
Price: Anything up to £5 depending on source
Details: Another PD tracker program.

Plug it in!

Here are some details of just a few of the Midi interfaces that are available nowadays...

Product/manufacturer: Amiga Midi Interface – Gajits
Available from: Gajits
Price: £34.95
Details: Midi In, Out and Thru connections. Cables supplied.

Product/manufacturer: Datel Midi Interface – Datel
Available from: Datel
Price: £30
Details: Datel also offer a micro-Midi version which costs less than £20.

Product/manufacturer: Midi Interface 2 – Trilogic
Available from: Trilogic
Price: £26.99
Details: Interface with separately switchable out/thru connections.

Product/manufacturer: Mini-Midi – Omega Projects
Available from: Omega Projects
Price: £19.99
Details: Reasonably priced interface which is built in to a D-connector. It comes complete with two leads which can plug directly into the Midi gear and contains LED indicators which flash when Midi data is being transmitted or received.
The LED indicators are by no means essential but since they can help with fault-finding they are always a useful.

Jargonbuster

DIN connector
A standard plug/socket system found in many pieces of audio equipment. Cassette tape machines, for instance, usually have DIN connectors on the back-panel.

Expander
A common name for a synthesizer sound module – a unit which contains the sound generating circuitry of a synthesizer without any keyboard.
You use them in conjunction with a normal synthesizer to add to the number of different sounds available.

Midi
This is an acronym for Musical Instrument Digital Interface, a communications framework designed to provide standardised digital communications between all manner of musical equipment.
Prior to the adoption of Midi, many musical equipment manufacturers set their own standards and a consequence of this was that linking equipment from different manufacturers was often difficult. Now that all music equipment communications are Midi-based, life for the computerised musician has become (almost) trouble free!

Midi interface
The Amiga's serial port cannot be directly connected to Midi equipment because although the serial port can handle the speeds required for Midi data, the physical connections and the electrical signal characteristics are incorrect. A conversion box, called a Midi interface, is needed.

Multi-timbral synth
A synthesizer capable of playing more than one voice at the same time. Multi-timbral Midi synthesizers can usually be programmed so that different voices respond to data on different Midi channels.

Synth
Abbreviation for synthesizer.

Suppliers

Desert Software	051-430 7400
Gajits Music Software	061-236 2515
Distribution	081-543 3500
MicroPACE UK	0753 551888
Omega Projects	0942 682203
Seasoft Computing	0903 850378
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Stop whinging, you lot!

Star Letter

It seems that a great deal of space is taken up in your magazine, not to mention other Amiga mags, by letters from Amiga owners complaining about the cost of "essential" upgrades to their machines. They often finish by suggesting that they may be "forced" to change to a PC.

I use both machines – a 386DX25 at work and an Amiga 600HD at home – and must say that I find the Amiga infinitely more pleasant to work on.

Workbench, in whatever version, is a far superior graphical interface to that provided by Windows. Hardly surprising since Windows is, after all, a "bolt-on" software fix whereas the Amiga range has been designed and developed for Workbench from the start.

Anyway, being involved with both machines I also read magazines from the "other side". This has made me realise that in a number of cases it is not the Amiga which makes upgrades so expensive, but the suppliers. I don't want to upset your advertisers but, frankly, their prices are often extortionate.

I realise that Amiga-specific goodies are governed in price by demand, but this should not apply to standard components such as IDE and SCSI drives, floppy drives, and even floppy disks themselves.

To illustrate my point, I have included a list of prices taken from your advertisers in the August issue, and one from a PC mag. Although the PC prices do not include 2.5in cables, the cost of these is negligible when compared to the savings.

The bottom line is that when contemplating expansion, you should always shop around. You'd be surprised how many PC dealers are helpful and courteous, as a sale is a sale no matter which machine a drive is going to end up in.

J B Horner, Stockbridge

The list you supplied showed an average saving of about 33 per cent on hard drives and the same on floppies when comparing prices quoted in PC and Amiga mags, so the benefits of shopping around are clear. However, though you mention the fact that volume can affect prices, you wrongly dismiss the argument where hard drives are concerned.

A company which works mostly or completely in the Amiga market cannot hope to achieve the volume of sales which a PC dealer will realise.

In effect, this means the Amiga company cannot buy drives in bulk, which pushes up unit costs and therefore end user prices. The PC market suffers from an overabundance of retailers and mail order companies already, so it is not an answer to say that Amiga suppliers should deal in both markets, especially as most will find an area of expertise and stick with it.

Competent users with a screwdriver and steady hands should have no problems fitting and formatting an IDE drive bought from a PC dealer, but most users will still want the cable and formatting software supplied in the box and a certain amount of after-sales service in case something goes wrong with what is for many users their single most important investment in peripherals.

Can you imagine phoning a PC box shifter with an enquiry about Fast FileSystem and what assigns you might want to insert in the startup-sequence to get a game to work?

Ezra Surf's Postbag

ESP

Allah by airmail

Last month, I decided to put a contact ad in your Classified section and had a brilliant result. Not one of the responses was in search of pirated software.

Anyway, the last reply I received was from Saudi Arabia, so I thought "he must be a dedicated Amiga user to send a letter from so far away." How wrong I was! I opened the letter to find a leaflet introducing me to the Islamic religion. I just burst out laughing.

I had boldly stated that I wanted PD contacts, not religious contacts. I know you cannot help this, but I must take this opportunity to inform people that this does happen. Why do people do this? I don't send out leaflets about "how to be an atheist".

Is there anyone else who has received strange replies from adverts placed in the classified part of the magazine? I'm sure there have been some bizarre responses out there.

I have been an avid reader of *AC* since the December 1990 issue (when I got my A500), and my only request is for fewer demos on the CoverDisks such as Bars & Pipes jr and CineMorph jr. I expect you make money out of that, but me and my contacts agree that we prefer a totally PD/shareware disk.

Graham Beale, Stonehouse

I'm sorry you seem to have attracted an unwelcome response to your ad, though laughing at the religious convictions of others is perhaps an extreme reaction to a leaflet which, upon a thorough reading, gives no cause for offence.

The fact that the remainder of your correspondents were genuine Amiga users with no piracy intentions seems more a cause for celebration than the concern you might feel at a single inappropriate leaflet.

As for your objection to demos, the two programs you specifically mention aren't demos in

➤

Poor old ST

Am I right in thinking that the Atari ST has died and gone to wherever obsolete piles of junk totter off to when the buying public finally tell them to take a hike? My impression on visiting my local W H Smiths and adjacent game shop was that there are virtually no new ST games and no real interest.

What made me stop and think, however, was the fact that until little over a year ago the Atari market was still pretty big, even if it was falling off. If such an established machine with a large user base can die so quickly, what will happen to the Amiga?

I think the public should be told.

G Peterson, Stoke

The ST was an old-fashioned machine with out of date technology, which is why it died out. The Amiga A1200 is a modern 32-bit computer with excellent graphics and a competitive price point. There is no comparison between the ST and Amiga markets.

Grounded A4000

As an A4000 owner I was shocked that Microprose's latest flight sims, B17 Flying Fortress and Gunship 2000, refuse to work on my machine.

In search for some explanation I called the helpline and discovered that they were not able to test their games on the A4000 simply because they didn't have one at the office!

I don't know about you, but this isn't what I'd expect from a quality software house. Luckily, all is not black for A4000 owners, as I am sure most of already know Digital Image Design will soon release an AGA version of Inferno.

Digital Integration too assured me that their forthcoming Tornado game will be compatible with all Amigas, including the A4000. Even better, there will also be an AGA version shortly after the release of the standard one, and there should be an upgrade path. Well it seems DID and DI have actually shown commitment.

I have a question for you. If Microprose manage to get their act together, is there a possibility of seeing Falcon 3 converted to the Amiga before the end of next century?

Camermans Filip, Belgium

You are being unfair to Microprose when you criticise them for non-compatibility with a machine which was released well after the game in question was in development. It is difficult for a company to anticipate new chip developments and costly to rewrite substantial sections of a game which has already taken many thousands of man hours to code.

Games released after the A4000's launch, especially flight sims, are fair game, and any company which ignores those users with faster machines deserve all the flak they get.

As for Falcon 3, don't hold your breath as the game uses a lot of the sort of texture mapping that only PCs can normally handle. There's a good chance the game will appear on the CD32, but we'll have to wait and see.

Ezra Surf's Postbag

ESP

the sense that they do not allow the user to create or save projects, but are limited versions of commercially viable products.

The intention is to give readers a program which is capable of producing useful results while at the same time offering savings on the latest version of packages which many might not be able to afford at the full price.

Reader response to these promotions has been very good, with thousands of you taking advantage of savings to upgrade to fully-fledged current versions.

Some have, of course, objected to the use of larger demo programs which use up a lot of disk space and leave little room for PD and shareware programs.

Fear not, as we have no intention of abandoning the policy of bringing our readers the best utilities and games available in the shareware sector.

By the same token, we can hardly ignore the huge number of people who welcome the chance either to try out a limited version of a commercial product or save money on a purchase. More worrying to us is the reaction of readers to the inclusion of game demos on our double disk issues.

Do you like the game demos? Are they good fun or a waste of time and disk space? We'll be polling your opinions through the disk pages in the near future for a definitive answer, but feel free for the moment to air your feelings through these pages.

More compos

I read with interest the letter from Daryl Booth of Ramsgate in the September issue, and I too think that there should be more competitions. You don't have to make the prizes spectacular, maybe a serious program or game, but please can we have more competitions?

I also noted that you have started to have phone-in only competitions. Please, please, please stop doing this. If you must have the telephone option (which I know you make a lot of money from), could we please have a postal option too?

I never enter phone-in competitions, but I have entered every other competition you have run for the past four years. Alas, I haven't won a thing. Maybe you could send me a booby prize?

If not, I sincerely hope you will take heed of my comments.

Carrie Metcalf, Basingstoke

Competitions, whether of the phone-in or postal variety, have always been an important part of the magazine and will continue to be so. However, cramming in more compos at the expense of, say, an extra page or two of reviews, might offend more people than it delighted.

We have to balance the magazine as best we can, and listen constantly to reader feedback so that we may better judge how well we're doing. As part of that feedback, your letter has been passed to our compo pixies for proper consideration. Watch this space.

Got something to say through the pages of AC? Ezra Surf is our mailman, dedicated to reading your letters and selecting the most interesting for publication. Drop him a line at:

Ezra Surf's Postbag, Amiga Computing Adlington Park, Macclesfield SK10 4NP

Please don't enclose saes as Ezra just hasn't got enough paper to reply personally. He might also have to shorten your letters, so don't be offended if you end up getting the chop.

CD worries

I'm the proud owner of an A1200 and since owning the machine I've fitted an 80Mb hard drive and added a GVP A1230 accelerator, but now the CD32 add-on is close for the A1200 I'm a little worried as I've heard the drive will attach to the trapdoor via the back plate and a SCSI interface.

What will happen to my A1230? Will it be redundant if the CD drive has to use the trapdoor slot? This worries me as I would like both items in my machine. I just home Commodore think of all the A1200 owners who have bought RAM expansions and so on.

Also, on the same subject, Commodore have put a seal on the backing plate which means people will have to lose their warranty if they attempt to install hard drives, which is unfair as they wouldn't have to touch the chips or anything.

R Bell, London

Commodore haven't yet confirmed exactly how the CD drive will attach to the A1200, but it is highly likely that it will fit via the expansion slot, which would make the use of all RAM or accelerator expansions impossible.

The PCMCIA slot has a 16-bit data bus, and as such probably won't be suitable for connection of a CD-ROM drive. Commodore may have found some way of making the marriage, but if so they are keeping details close to their chests for now.

We will continue to try to find out what is happening on this front, as many users are in a position such as your own, and bad news, in this case at least, is better than doubt and uncertainty.

Warranty seals have been placed on the blanking plate because nothing will fit in this slot until a SCSI interface or some other form of pass-through connector has been added, and as this would involve opening the machine, the warranty would be invalidated in any case.

Cheapo USA

I am writing to ask if you can explain why there is such a massive difference between the price of hardware in this country and in the States. I'm referring in particular to the GVP combo cards, as I'm thinking of buying an 030/50MHz or the 040/33MHz.

The price of the latter in this country is approximately £1,279, whereas in the States it is $979, which is about half the price. These prices were taken from July's *AC* and *Amiga World* of the same month.

I think I would be right in saying that everything in the States is cheaper, but why? I wouldn't mind paying an extra £100 or so, but double is just silly, as I think you'll agree.

Satpal Chander, Huddersfield

When a piece of computer equipment is imported from the US, its dollar value, including any freight and carriage costs, is converted to sterling, then Customs and Excise add 4.9 per cent.

Once the full cost of the equipment has been worked out, the usual 17.5 per cent VAT is added, and calculated on the total after import duties.

What this means is that a peripheral costing $900 might have carriage costs of $100 added to a total of $1,000. In sterling, this comes to £666.

Add 4.9 per cent import duty to make £699.33, then add a further 17.5 per cent to this to make £821.72. In effect, the dollar has been converted to the pound more or less one for one, and this is before any margin for profit is added on by the UK dealer.

Many American peripherals, including the GVP A1230, are rather overpriced in this country, but when the duties and taxes imposed at the quayside are taken into account, the disparity in pricing is not as huge. This, of course, doesn't mean UK companies have an excuse to boost prices.

A fix for baloney

Oooh, you are awful! May pimples ruin your taste buds!

What a load of baloney! You say on page 23 of September's edition of *AC* that "Amiga Computing still supports Workbench 1.3 whenever possible". Well, what happened to the support on the August issue?

CineMorph jr could only be used by owners of Workbench 2 or higher. Not a lot of useful things on that disk for the poor old 1.3 user.

You may be surprised to know that there are still an awful lot of 1.3 owners out here, and though we may not have gone in for ROM swapping, many of us have invested our hard-earned pennies in bigger memories and so on, so please keep your word and support us.

Michelle Anderson, Barton-le-Clay

We apologise for the initial unfriendliness of CineMorph jr to Workbench 1.3, but we have now fixed the problem and the solution has been printed. For those who missed it, simply delete a file called Asl.library from the libs directory of the de-archived CineMorph jr disk.

As far as keeping our word is concerned, we continue to seek out Workbench 1.3 shareware utilities for the disk and strive to ensure that most commercial programs work on the most used version of Kickstart and Workbench.

Our commitment to WB1.3 should need little more demonstration than the inclusion of a version of Caligari on the October disk which worked only with older Amigas.

Good PD and shareware utilities which function under Kickstart 1.3 are becoming harder and harder to find as the vast majority of developers and programmers have switched to Kickstart 2.04 and above, lured by the relative ease with which intuition-based programs can be created under the newer versions.

Don't, therefore, be too surprised if good WB1.3 shareware dries up completely over the coming year.

A boot in the floppies

The fifth part of Mark Smiddy's introduction to AmigaDOS explains how to create a general purpose boot disk

For more than 150 years, people have been saying there is more than one way to skin a cat. Nostalgia aside, there remains a lot of truth in this cliché – and it can be readily applied to computers too.

AmigaDOS has changed a lot over the years and system improvements make it very difficult to make a generic boot disk suitable for any machine.

The problem is not with the system, but with the software; unless you have access to the Workbench 1.3 disk set it is not practical to make a bootable disk for that machine.

However, it is more likely you will want to create a boot disk for your own machine and this is what we will concentrate on for the remainder of this series.

A certain amount of thought will be required on your part – this isn't a cop-out: You will learn more and faster by doing it yourself.

Directories are containers; as you may have noted they are just like the drawers on the Workbench. Each directory is used as a container for similar items – commands, utilities, fonts, projects and so on.

Generally speaking, computers do not need directories – they're there for your convenience. If you had a disk you used to store files from Deluxe Paint you might categorise the work into different types and create a directory (drawer) for each one.

AmigaDOS requires a certain list of directories which must be present on any disk. This will allow an application to locate the software it requires.

Applications (tools) include everything from wordprocessors to spreadsheets and even the Workbench utilities themselves. The following directories are required by all versions of AmigaDOS.

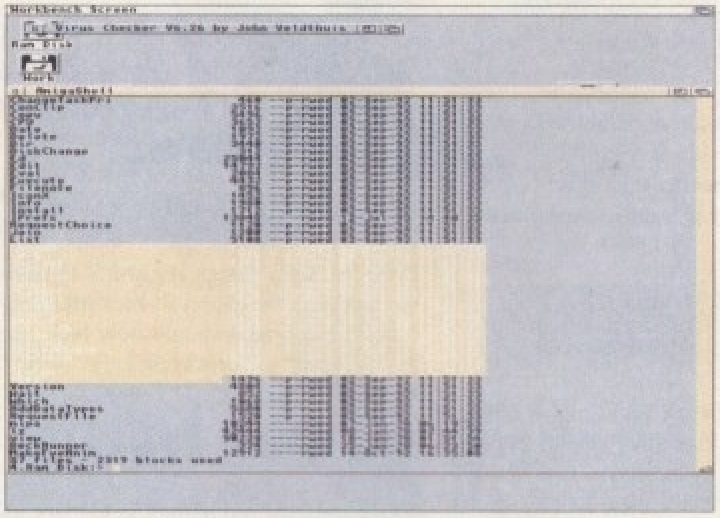
Essential directories
C: AmigaDOS commands.
S: AmigaDOS scripts (programs).
Fonts: Bitmapped and outline typefaces.
L: The run-time libraries. Required by AmigaDOS software devices and third-party filing systems.
Libs: The library directory – AmigaDOS and third-party function libraries.
Devs: Device libraries – external device handlers.
Prefs: The preferences. The actual contents depend on Workbench version.

Optional directories:
System: System commands (FORMAT, DISKCOPY, CLI and so on)
Utilities: Non-specific utilities.
Tools: Workbench tools.

The AmigaDOS command MAKEDIR is used to create a new sub-directory (strictly called a user-directory) – let's create some of the new directories now.

Boot your Working AmigaDOS disk, open a Shell and make MAKEDIR resident like this:

```
>RESIDENT C:MAKEDIR
```



Working with console Copy and Paste – be careful how much text you select!

Now enter the following:

```
>MakeDir BootDisk:S
>MakeDir BootDisk:Fonts
```

That will create some of the required directories. Don't try to make any more at this stage – there is a simpler way.

MAKEDIR can take multiple arguments and create more than one directory at the same time – let's do that now and create the some more required directories.

It would take a long time to enter this line if we had to enter BootDisk every time, so first of all we'll make BootDisk the current disk and start from there:

```
>BootDisk:
>MakeDir L Libs Devs System Prefs
```

A fully configured disk must be "stuffed" with a lot more information than this – but AmigaDOS is quite smart and some applications only need a bare minimum to work. So, let's add some tools to get the Workbench started.

First of all, we have to move the command to activate the Workbench program: LOADWB. You will recall AmigaDOS commands are stored in the C directory which is also known as C: on the current boot disk – which should have been your Working AmigaDOS disk.

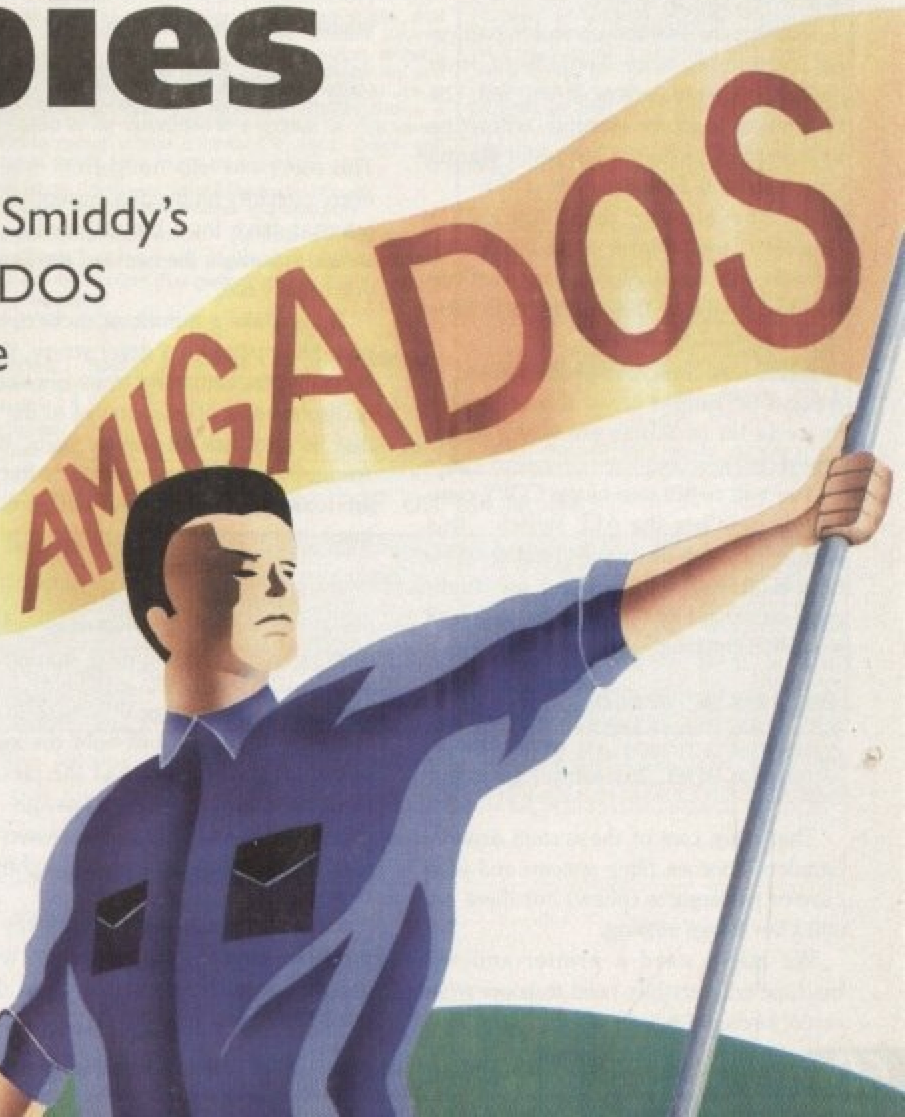
The AmigaDOS command COPY is a very versatile command which is basically used to duplicate files between disks and directories. The command requires two arguments: a source file (where it's copying from) and a destination (where it's copying to). Enter this:

```
>COPY FROM C:LoadWB#? TO BootDisk:
BootDisk:C    [created]
LoadWB.. copied.
```

This command copies the LOADWB command from your working disk onto your new boot disk and creates the C directory at the same time! This is accomplished with a little trick using the special character string "#?". Don't worry about how this works – you'll see more examples in a moment.

Is that enough? Try booting your new boot disk and see what happens. Nothing! This is because AmigaDOS looks for a "boot script" – a special AmigaDOS program in which it executes a sequence of AmigaDOS commands which load and configure the Workbench proper.

This process is completely automatic – provided the special file is there. We have ➤





to create it first. Boot your Working AmigaDOS disk once more and enter this:

```
>ED BootDisk:S/Startup-sequence
```

You will be asked to change disks if you only have a single drive.

A screen like the one shown in Figure I will appear. This is the AmigaDOS full-screen editor, ED. A small message at the bottom left of the display should show Creating new file.

ED is like a very simple wordprocessor used to create and alter AmigaDOS script programs. The program we are going to create has just two lines – enter these exactly as they appear:

```
LoadWB
EndCLI >NIL:
```

Leaving ED can be achieved in a number of ways, but the best way is to use the menu options. Select Save first then quit (you can also use the direct command Esc-X which means you press the Esc key once, then X, then Return. This saves the file and exits ED at the same time).

Wait a few seconds for the disk drive to finish writing to disk and reboot the machine with your boot disk in the internal drive. As if by magic, the Workbench appears!

There's nothing magic of course; AmigaDOS has booted your disk, found a boot program, executed it and loaded the Workbench. ENDCLI turns off the initial Shell window and cleans up after itself – we don't have to copy this from an original disk because like many AmigaDOS commands, it is already in ROM.

Examine the Workbench and in particular try running some Tools from other disks; the chances are most will fail. The Preferences tools, for example, will refuse to work and present a requester stating Can't open ASL.Library.

As I've already said, AmigaDOS requires a large number of files to operate correctly – the actual files do vary from version to version, so the safe bet is to copy everything!

Enter the following commands – AmigaDOS output is not shown to save space (a lot of things are going to get copied here).

You will notice two of the COPY commands here use the ALL switch – this ensures any sub-directories (and contents of) the directory being copied are duplicated too. Don't let that phase you – you'll see it all happen on screen!

```
>Copy FROM LIBS: TO BootDisk:Libs
>Copy FROM DEVS: TO BootDisk:Devs
>Copy FROM L: TO BootDisk:L ALL
>Copy FROM ENVARC: TO BootDisk:Prefs ALL
```

That takes care of the system drivers, handlers, libraries, filing systems and your current preferences (phew) but there are still a few things missing.

We might need a printer and the machine will certainly need to know what sort of keyboard it has!

```
>MakeDir BootDisk:Devs/KeyMaps
>MakeDir BootDisk:Devs/Printers
```

There are also some directories required by later Workbench versions (their presence does not affect the earlier revisions) and these are created thus:

```
>MakeDir BootDisk:Devs/Monitors
>MakeDir BootDisk:Devs/DOSDrivers
>MakeDir BootDisk:Devs/Datatypes
```

Finally, Workbench 3 and higher have an extra directory containing certain special libraries required by the colour preferences tools, and it is possible these will be used by software in the future.

```
>MakeDir BootDisk:Classes
```

If you have Workbench 3 you should also copy the contents of this directory:

```
>Copy SYS:Classes TO BootDisk:Classes
```

Next we need to locate and copy the required printer and keymap driver files from your original Workbench disk set to the new boot disk.

First of all, we'll locate the correct keyboard layout. In the UK the preferred keymap file is GB – although this will be different if you live elsewhere in the world.

The keymaps move location from the Extras disk in release 2 to the Storage disk in release 3, so we'll use a special AmigaDOS command, SEARCH, to find them. Make SEARCH resident like this:

```
>Resident C:SEARCH
```

Now insert your Workbench disk in the internal drive and enter this:

```
>Search DF0: FILE ALL "GB"
>
```

This command tells AmigaDOS to search every directory on the disk currently in the internal drive for a file called GB – you should substitute the name of the keymap you usually use.

It may take a minute or more to complete the operation – don't worry, this is normal. If the command stops and nothing is displayed as above, change to the next disk in your disk set and try again. When AmigaDOS eventually locates what you are looking for, the screen will look like this:

```
>Search DF0: FILE ALL "GB"
Extras2.1:Storage/Keymaps/gb
>
```

Now we'll use another little trick to save some typing. Click and hold the mouse button at the beginning of the message (Extras2.1:Storage/Keymaps/gb in this example) and drag across to select the text; the selection will be highlighted in blue.

Hold down the right Amiga key and press the letter C – that copies the text to the clipboard. Now enter this but don't press Return just yet:

```
>Copy FROM
```

Press the Right Amiga key and V to paste the text from the clipboard back into position – your screen should now look like this (the path – Extras2.1:Storage... – may be different though).

```
>Copy FROM Extras2.1:Storage/Keymaps/gb
```

Finally, add the rest of the line to make up the destination so the completed line looks like this and press Return:

```
>Copy FROM Extras2.1:Storage/Keymaps/gb TO
BootDisk:Devs/Keymaps
```

Don't get disheartened if this does no work exactly as described first time. Console Copy and Paste is tricky until you get the hang of it – and that will take practice. This time try searching for the printer driver file you normally use. If you don't have a printer, or you are not sure which one, just look for the most compatible one of them all, EPSONX. Your screen should look something like this:

```
>Search DF0: FILE ALL "epsonx"
Extras2.1:Storage/Printers/EpsonX
>Copy FROM Extras2.1:Storage/Printers/EpsonX
```

Now add the destination directory which is BootDisk:Devs/Printers like so:

```
>Copy FROM Extras2.1:Storage/Printers/EpsonX
TO BootDisk:Devs/Printers
```

Our boot disk currently only has a single AmigaDOS command, LOADWB. This is not acceptable since even the AmigaDOS boot program will need more commands than that in order to work. It is possible to copy the entire command directory over from a working disk like this:

```
Copy FROM C: TO BootDisk:C
```

but this is lazy and it takes a lot of room on the boot disk – space that could reasonably be used for other things. At this stage therefore, we'll copy the following useful commands: COPY, MAKEDIR, DIR, ASSIGN, ED and IPREFS.

You have already met most of these: IPREFS will be explained in the next lesson. Copying these files one by one is slow. For this example we'll use a simple method to copy everything across in a single line.

First, we'll make the current directory the command directory of the boot disk:

```
>C:
```

2.Now we'll copy the files over in one go. To save confusion, this command has been split into two – ,but you can insert all the commands (ASSIGN, DIR, and so on) between the FROM and TO arguments if you wish.

```
1>Copy FROM COPY DIR MAKEDIR TO BootDisk:C
1>Copy FROM ASSIGN ED IPREFS TO BootDisk:C
```

At this stage if you try to boot your new boot disk it will not have the correct screen mode, keyboard layout printer driver or anything else you can set through preferences.

Apart from the fact Workbench is active you can do very little else with it. The Preferences are not working yet because the preference managers cannot find the user configuration and the preferences "Daemon" (IPREFS) cannot locate the current settings.

These modifications are made at boot time – that's one reason why it seems to take so long – so we need to edit the boot program like this:

```
>ED BootDisk:S/Startup-sequence
```

When the screen appears, press Return a few times to clear some space above LoadWB, and enter the following lines:

```
Copy ENVARC: RAM:Env ALL QUIET
Assign ENV: RAM:Env
Assign PRINTERS: DEVS:Printers PATH
Assign KEYMAPS: DEVS:Keymaps PATH
Assign LIBS: SYS:Classes ADD
IPrefs
```

Save the file as described above – and wait for disk activity to finish before proceeding.

Reboot the machine with the your BootDisk and watch what happens. The lines you have just entered have the following effect:

```
•Copy ENVARC: RAM:Env ALL QUIET
```

Copies the user-preferences settings for everything from the screen mode to the printer, into a new directory on the RAM Disk called ENV – the current environment directory.

The files in ENV:Sys are read by IPrefs when it attempts to set up the current configuration. The Env directory is created by the COPY command automatically and the QUIET switch stops it from echoing everything back to the screen (which will cause problems).

```
•Assign ENV: RAM:Env
•Assign PRINTERS: DEVS:Printers PATH
•Assign KEYMAPS: DEVS:Keymaps PATH
•Assign LIBS: SYS:Classes ADD
```

These lines tell the system software whereabouts the various directories are located by assigning them special name.

```
•IPrefs
```

sets the user preferences. This command is a daemon, which means once started it never stops. It hangs around in memory and watches out for any changes you make to the preferences – IPrefs (or Intuition Preferences) is responsible for messages such as: "Please close all windows except drawers...".

● In the concluding part next month, the renaming system directories will be added and the boot disk completed with a sample application.

E&OE 3/9/93

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Hands on!

The humble hand scanner can afford degrees of creativity that even the pros would be impressed with. Jeff Walker divulges the benefits of his experience

Scanning is one of those skills at which you instinctively get better the more you do it. But there are finite limits to what you can achieve, dictated by the hardware and software being used.

Later we'll be looking at which type of scanner is best for which type of job, and I'll have a few tips and tricks for you to try out, but because understanding how a piece of equipment works often helps you to better use that equipment, let's first consider how scanners scan.

It's not complicated. They shine light on to the graphic that is being scanned. That light is reflected back, because that's what light does.

Receptors in the scanning head then read or "sample" the intensity of the reflected light. The resolution at which you scan – the "dots-per-inch" (dpi) – tells the hardware how frequently to sample the reflected light.

If you choose 100dpi, then the reflected light will be sampled every 1/100th of an inch across the graphic.

Monochrome (or simply mono) scanners are literally mono (one) chrome (colour) devices – a bit like mono printers inasmuch as they work only with black dots.

The reflected light-intensity value is converted by the scanner into a pattern of black dots. The matrix of the pattern is square, usually eight dots wide by eight dots high, which means there are 64 dots in all. This matrix is properly called a grain, sometimes a cell, but most often it is referred to as the dither matrix or dither pattern.

Dark colours reflect less light, so these get converted into a matrix that contains mostly, or entirely, black dots; light colours reflect more light, so these get turned into dithers that contain only a few black dots or none at all.

When the entire dithered image is printed at the correct resolution it appears to contain many shades of grey; in reality it is lots of little black dots, and the density of these dots in any particular area of the image dictates what shade of grey your eye is fooled into seeing.

The popular mono hand scanners, like those Power Computing and AlfaData make for example, turn the reflected light intensity into a value between 0 and 63, and they have 64 matrices built into them to represent these 64 levels of "grey".

You know the little switch on the left of the head that has four positions; Text at one end, Photo or a small dot at the other, and two larger dots between?

These simply change the matrices that represent the light intensity values. The Text setting is a very simple matrix. Either all the dots are black, or all the dots are not black, and the setting of the scanner's Brightness wheel determines at what level of reflected light the entire matrix turns black.

It is these patterns that the mono scanner head sends, via its interface, to the scanning software. All the software has to do is read in the data and splat it on the screen.

Colour scanners work differently. A proper colour scanner shines three lights at the image – red, green and blue (RGB) – and then calculates an intensity value for each of these "primary" colours. These are combined, just as you combine RGB values in your painting software's colour palette, to produce a true colour.

For a 24-bit colour flatbed there will be 256 intensity levels of each primary



To accurately capture the hundreds of thousands of colours and subtle blends in a photograph, nothing less than 24 bits of colour will suffice



Although some colour hand scanners are 18-bit, the 64 shades of each primary colour that they see are not enough to reproduce the original colours in the photograph accurately



This scan from a 12-bit colour hand scanner contains only about five per cent of the number of colours in the 18-bit scan



A 24-bit flatbed scanner can give you 256 true shades of grey



colour, which means that a total of 16.8 million colours (256 x 256 x 256) can be created. Some colour flatbeds do one pass each for the three colours, so three passes in all, others can do it in one pass by continually flickering the three primary colours at the image as they go.

The one-pass method is much quicker, but the three-pass method produces colours that are truer to those in the original image.

Because of their size and relatively low cost, colour hand scanners don't have three lights to shine at the image. So they shine a single "white" light instead.

SPECTRUM

Sunlight is white light, and, as Isaac Newton discovered, it is composed of an even-ish amount of every colour in the spectrum. It therefore reflects colours truly. Man-made white light is not so pure. You've probably heard of the "daylight" fluorescent tubes that many offices use instead of traditional light bulbs?

Colour hand scanners contain a similar fluorescent tube, although much smaller of course, and the reflected light is filtered by the scanner's receptors into its RGB components.

They can scan in levels of grey as well, and they do this in much the same way as mono hand scanners, only the intensity value is translated into a true shade of grey instead of a black and white dither pattern

One of the problems with mono hand scanners, caused by the limited number of shades they see, is that parts of the original photo that are very light colours, but not actually white, are seen by the scanner as white.

This produces screen images that have "hotspots" all over them, giving the image an ugly high-contrast appearance. One way around this is to place some thin, transparent coloured plastic or glass over the photo before scanning it. I find that red is best, but it depends on the colours and quality of the original photo. Different coloured materials produce different results.

My favourite trick is to cut up lots of transparent, differently coloured sweet wrappers, sprinkle these over the image, put a thin sheet of clear glass over the lot (pinched from a picture frame), and then do the scan. This is even more fun to do with a colour scanner.

And don't stick at clear material. Keep your eyes open for anything that is quite thin, fairly flat, and either transparent or semi-transparent. If the material is too thick the scan may come out slightly blurred, but I've put my offcut of 3/8in frosted glass (pinched from a skip) to good use now and then (hey, but children, if you are going to handle glass, please wear thick leather gloves and make sure a grown-up is present when you do it). Here's another good ➤

Colour hand scanners can produce 64 true shades of grey, which is often all you need





Mono hand scanners can save in 16 greys, but the limited number of shades they see means any light areas in the photo will stand out as hotspots, giving it a high contrast appearance



If your colour hand scans are looking like this, it means your scanner light is not shining brightly enough because it is not being supplied with a high enough voltage

To give your scans that "wrapped-up" look, try scanning them through some cling-film



Do you have the power?

If the fluorescent light in your colour hand scanner isn't bright enough, the red area of its spectrum fades, and consequently less red is reflected back to the scanner. So if you are getting dull scans from your colour hand scanner, or scans that have a blue-green tint to them, it is because the image is not being illuminated properly, and this almost certainly means that the scanner head is not being supplied with enough power.

The AlfaColor scanner, for example, takes 12 volts of power directly from the Amiga, and this is plainly not enough because it always produces scans that have a blue-green tint.

The more expensive Migraph ColorBurst can take up to 15 volts of power via a separate power supply unit (PSU), but it is being shipped by some UK distributors with a 12 volt PSU which, like the AlfaColor, results in blue-green images.

But give ColorBurst a 13 volt PSU, as Golden Image has done, and you get bright, vibrant colours that are close to those in the original. Golden Image is currently looking at supplying the AlfaColor with an external 13 volt PSU instead of letting it take its power from the Amiga.



The AlfaColour hand scanner



PowerScan colour offers affordable quality



256 greyscales can still produce great images

one. Screw up some cling-film to make it all crinkly and then pull it out again. Place that over the photo – don't smooth out any places where the cling-film has stuck together in folds – then place a sheet of clear plastic or glass over it so that you have a smooth surface to pull the scanner over. The result looks best if the image is converted to greys, but in colour you get a something that would be very, very difficult to produce with image processing software.

More tips in a sec, but before I forget I must quickly discuss printing. If your greyscale images are going to be printed on your home printer, keep in mind that the Amiga is limited to printing just four bits (16 shades) of grey, no matter what dither method you choose in Workbench preferences, or how many shades of grey may actually be in the graphic.

With help from special print-enhancing software like TruePrint or Studio (but not TurboPrint or Flexidump) you will be able to print more shades of grey. The Amiga prints colours in 12-bits – four each of magenta, yellow and cyan – so it is able to reproduce up to 4,096 colours on your colour printer.

To print more colours, colours that are truer to those in the graphic, again you'll need that special printing software to give the Amiga a boost.

If you don't want the expense of buying special printing software, then don't bother with the expense of a colour scanner.

I mean, from a home DTP point of view there's no point in having scans of photos that look great on the screen but print poorly, so you might just as well buy a mono scanner. But don't expect miracle printouts.

FLATBED

For colour multimedia work I'd recommend nothing less than a 24-bit flatbed scanner if you are working with photographic originals and want near photographic quality results.

If you are working with small photographs, cartoons, or any other kind of coloured illustration, including graphics produced with air-brushes, water colours and felt markers, you may very well get away with a colour hand scanner provided the graphics don't contain too many subtle colour blends and they are not wider than 4in.

If they are wider, how about trotting down to a copy shop and getting them reduced on a colour photocopier? Do I hear the sound of thousands of palms slapping thousands of foreheads?

For mono multimedia work from photographic originals, the 64 greys produced by the colour hand scanners are normally plenty good enough. When scanning illustrations, the 16-grey images produced by the mono hand scanners are often surprisingly good and may be all you need.

For scanning photographs and

> *16-greyscale images are often surprisingly good*



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Which scanne[r]

Essentially there are just two reasons to scan images into the computer – to use them on the screen for multimedia purposes, or for desktop publishing.

For multimedia work you will almost certainly want colour. The rule-of-thumb here is quite simple: The more "bits" of colour the scanner can see, the higher the quality of the scanned images will be.

The Power Computing colour hand scanner is a 12-bit device. It can see four bits of red, four bits of green, four bits of blue – that's 16 shades of each primary colour amounting to 4,096 colours in total (16 x 16 x 16). The AlfaColor and ColorBurst scanners are 18-bit devices, seeing six bits (64 shades) of each primary colour, so 262,144 colours in all.

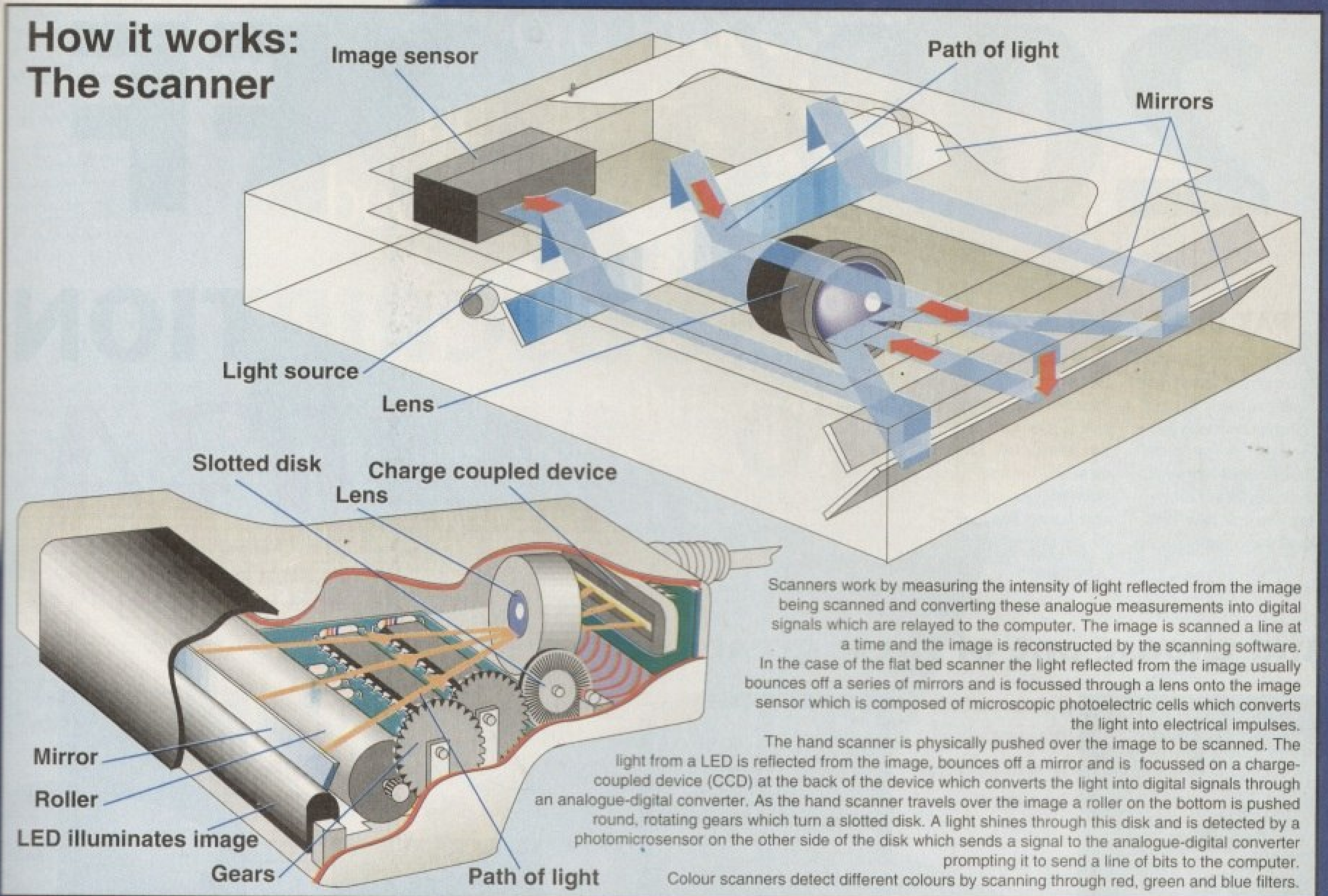
You'll probably want to end up with 256-colour images, so it would seem that any of these three will be plenty good enough colour-wise. But consider this: A typical photograph will contain between 100,000 and 300,000 colours.

If you want the colours in your 256-colour image to closely resemble those in the original photo, the more colour data you have in memory to start with, the better will be the converted image.

Flatbed 24-bit scanners, like the Epson GT-6500 and GT-8000, can see eight bits (256 shades) of each primary colour, which gives them a palette of 16.8 million colours.

Another major consideration is size. Hand scanners are only 4in wide. If you are plan

How it works: The scanner



Scanners work by measuring the intensity of light reflected from the image being scanned and converting these analogue measurements into digital signals which are relayed to the computer. The image is scanned a line at a time and the image is reconstructed by the scanning software.

In the case of the flat bed scanner the light reflected from the image usually bounces off a series of mirrors and is focussed through a lens onto the image sensor which is composed of microscopic photoelectric cells which converts the light into electrical impulses.

The hand scanner is physically pushed over the image to be scanned. The light from a LED is reflected from the image, bounces off a mirror and is focussed on a charge-coupled device (CCD) at the back of the device which converts the light into digital signals through an analogue-digital converter. As the hand scanner travels over the image a roller on the bottom is pushed round, rotating gears which turn a slotted disk. A light shines through this disk and is detected by a photomicrosensor on the other side of the disk which sends a signal to the analogue-digital converter prompting it to send a line of bits to the computer.

Colour scanners detect different colours by scanning through red, green and blue filters.

illustrations for use in desktop publishing I'd recommend a colour scanner – hand or flatbed depending on your needs. The only area where mono hand scanners come into their own in desktop publishing is for scanning line art – graphics like text, logos, symbols, cartoons, sketches and so on.

Back to the tips, and while on the subjects of line art and printing, let's see how to get the stuff to print with lovely smooth curves instead of the jaggies all round the edges. It's dead simple really.

All you have to do after importing your scanned line art into your desktop publishing program is to scale it. If your printer is a 300dpi device, scale it to 25 per cent (0.25 in Gold Disk software). If your printer is a 360 dpi device scale it to 21 per cent (0.208 in Gold Disk software).

It doesn't matter one iota what resolution you scan at, except that the higher the scan resolution, the larger the image will be when scaled down in the DTP software.

If you've scanned something at 200dpi and after scaling it to 25 per cent or 21 per cent it is too small, don't adjust the scaling; just scan it again at 300 or 400 dpi.

LINE ART

This scaling tip is just for line art, by the way, not for greyscale or coloured graphics. The print resolution of these is by and large dictated by the type of dither pattern selected. Scaling down grey or coloured graphics will not improve their quality when printed; only the print-enhancement software mentioned earlier will help you here.

Hand-scanning in a straight line can be difficult without the help of a scanning tray, but there's no need to splash out on one – you can build you own. Put a white piece of paper on your flat scanning surface.

Put your photo or graphic on that. Cover them both with some clear plastic – the thin stuff that goes gollump-gollump when you wobble it is best, and any stationers will sell it. Then get two big, thick, heavy books. I use two Yellow Pages. Place one to the left of the image, spine inwards, and get it aligned square with the graphic. Then gently place the scanner head on the graphic and up against the spine of the book.

Place the second book to the right of the scanner head, spine inwards again, so that there is no room for the scanner to move from side to side. Run the scanner up and down this trough a few times to check that the books are parallel.

Away go you. When you do the scan, lean quite heavily on the two books with one forearm, and then pull the head down the image with a very light touch. Don't put any pressure on the head – it's the pressure that causes you to make jerky movements. Just let the head slowly and evenly glide over the image.

How do you pull it slowly and evenly? Well, I tie one end of a bit of string to the scanner lead, the other end to the seconds hand on a kitchen clock, and put the battery in when I'm ready to scan.

And if you believe that, you'll believe anything. I'm gone. Happy scanning.

AC

do I need?

ning to scan anything wider than 4in, I promise you that doing it in two halves and attempting to stick them together in an art package is not a viable proposition. It is far easier to climb Everest. But then you might enjoy the challenge of course...

Whatever colour scanner you choose, you will need lots of memory to be able to use it productively. The more bits the scanner sees, the more memory will be required to hold that data in memory.

With 4Mb of expansion memory (that's on top of your graphics or "chip" memory) you'll be able to comfortably scan images to screen-sized proportions, but for colour desktop publishing, where you may want to scan much larger sizes, you'll need 6Mb of expansion memory to be comfortable. Even then you'll be restricted to postcard-sized originals unless you scan at low resolutions.

For mono desktop publishing you'll easily get away with 3 to 4Mb of expansion RAM. Keep in mind that the colour hand scanners can all produce images that contain 64 true shades of grey, whereas all of the less expensive mono hand scanners (which are 1-bit devices) can produce only 16 greys.

Well, having said that, the AlfaScan mono scanner software is able to produce TIFF files that contain up to 256 shades of grey, but it does this by anti-aliasing the image, which means that while the resulting image may appear to have smoother blends, it will also be less sharp because all the edges will be slightly blurred.

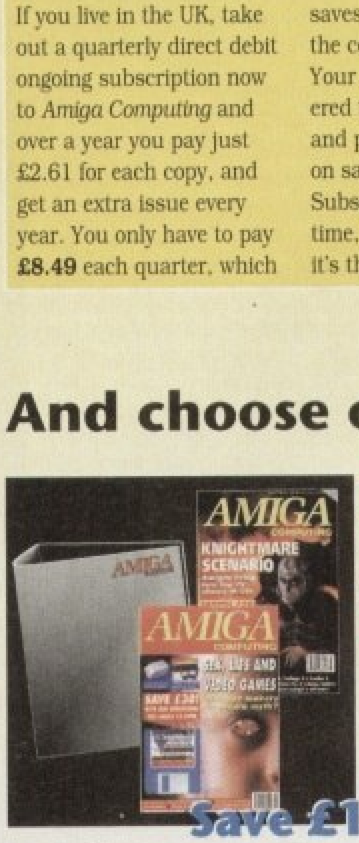
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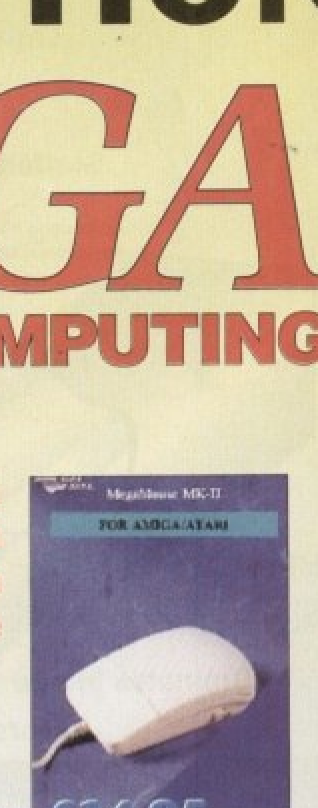
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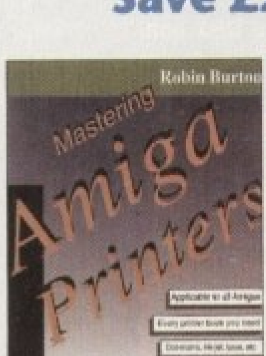
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Heavenly bodies

Distant Suns twinkle into your living room and a virtual world is brought up to date in this month's stellar survey

Astronomy is one of those sciences which simply wouldn't be possible in its modern form without the power of computers. Calculating the position and movement of objects trillions of miles from Earth takes mathematics of gargantuan proportions, and the human mind would turn to jelly long before the job was done.

With even a humble 68000-based Amiga, it is possible to keep track of millions of objects, calculate the paths they will take, the effects they have on each other, and so on, and it is this number-crunching power allied to colour graphics which makes Distant Suns possible.

Now in v4.2, Distant Suns has come a long way since its 1991 launch and sports just about as many options as the amateur astronomer or physics teacher could wish for. It is now the ideal tool for Amiga users with either a leisure or scientific interest in the stars.

AZIMUTH

The sky is normally mapped by referring to altitude and azimuth co-ordinates expressed in degrees (planetarium mode), and the program defaults to this system for those who know a bit about astronomy.

For the rest of us, however, there is a facility to jump to any one of hundreds of cities or simply type the longitude and latitude of the position from which the sky is to be viewed.

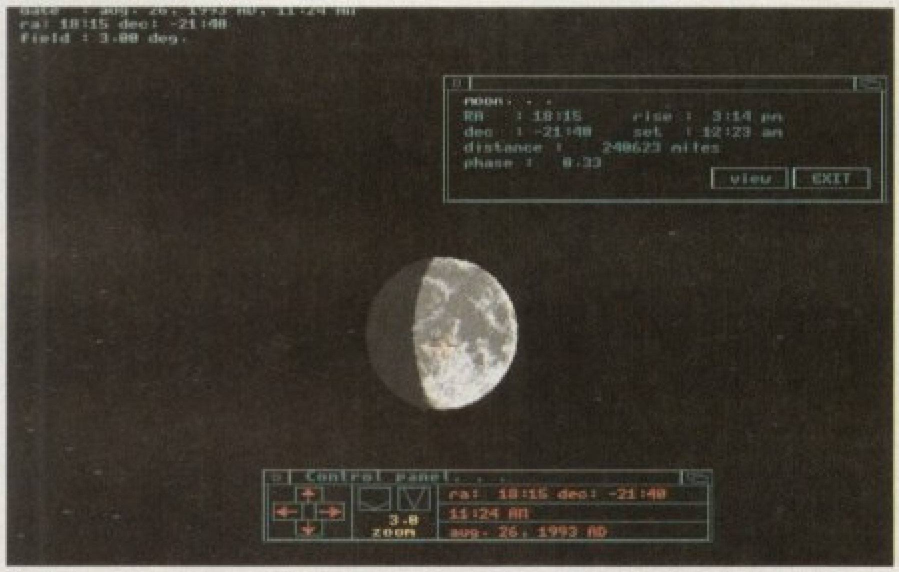
After this it is easy enough to navigate one's way about using the more common compass directions, or local mode as the program calls it.

For example, to check out the view from a London bedroom window, the user can use a menu selection to set London as the viewpoint then tell the program which way he or she is looking. A star map of the night's stars appears, and a variety of options are available for oodles of information.

There is a table showing when each of the planets will rise and set, the constellations can be shown complete with outlines drawn in, and any number of different objects can be added or subtracted from the view depending on what the user wants to see.

An amateur with a 3in refractor might, for example, be interested in spiral galaxies, and by telling the program to plot all these on-screen, finding out where in the sky each one is can be as easy as clicking with the mouse.

This yields information about declination (latitude), rising and setting times, and so on, and should make it easy for star-spotters to pinpoint their favourite objects.

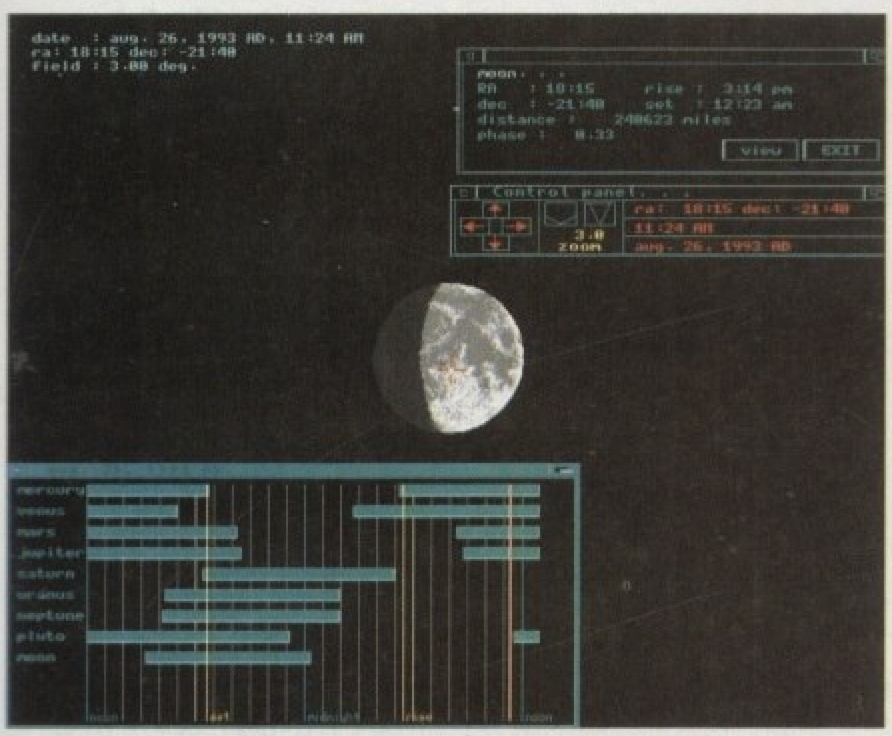


Instant moon information with phase distance and much more all on-screen with one mouse click

With a properly calibrated tripod it should be child's play to position a telescope so that the object came immediately into the user's field of view, negating the need for frustrating minutes spent navigating one's way around the sky with a finder scope.

Though confusing at first, the co-ordinates system is explained reasonably well in the manual, and with the help of a beginner's astronomy book and a copy of Distant Suns, anyone can become an expert night time navigator in no time.

To add graphical spice, Virtual Laboratories have included a number of IFF pictures taken from the Voyager space ➤



Zoom in on the planet of your choice with the help of an on-screen planet finder



You can even track your favourite comet across the galaxy

probes. These show details of most of the planets in the solar system and some of their satellites and are accessed by clicking on an object while in identification mode, then clicking on the View button which appears on the info panel.

As the pictures are not AGA format, they lose some of their dramatic impact, but there are some beautiful shots, particularly that of the Olympus Mons volcano on Mars and the photo taken of the erupting volcano on Io.

By relieving the mostly black look of the program (we're looking at the night sky, remember?), the IFFs break up what could easily have turned into an information overdose.

EDUCATIONAL

Extra disks of pictures taken on the voyager missions are available to those who wish more visual delights, so the extent to which Distant Suns can be turned into a program which is both educational and a treat to look at is limited only by the user's preferences.

Three ready-defined environments are included in the package, showing the last visit of Haley's Comet in 1986 and a couple of eclipses, but as these are all events in the past they are of only educational use, and a couple of updated events, such as the recent visit of a large meteor shower, would have given the program some contemporary punch.

Distant Suns is, nevertheless, an ideal tool for parents and teachers alike and a definite "must buy" for astronomy-loving Amiga users.

● *For more information on Distant Suns, phone Meridian Software Distribution on 081-543 3500*

Safari fonts

Some of the best PostScript and Compugraphic fonts to be found are those churned out by Safari Fonts, and the collection has recently topped the quarter century mark with the release of disk 25, and while not the best in the range it is a fitting landmark.

Disk 25 contains only five fonts, and as it doubles up, offering different versions of the same typeface, it could be said only to have three.

However, the MovieStar font is almost in itself worth the asking price, and is one of the most stylish fonts to have come out of the DTP world's recent infatuation with Star Trek.

Of less than general use, fonts such as MovieStar Sans and MovieStar Spur Serif (easily the best font on the disk) are ideal for stylish greeting cards, some logo work, and posters. They are augmented by Triangulus, a fairly pointless font of the wacky school, and Tycoanus.

The latter is actually a renamed version of the Star Trek Deep Space Nine font and taken from the latest spin-off series. Worthless outside the context of Trekkie mania, it is nonetheless one which Trek fans will undoubtedly want to add to their collection, making this disk a good buy for such disturbed people.

As usual, in common with all Safari fonts, each is well designed, clean and slick, and available in both Compugraphic and Adobe Type 1 PostScript format, so users of all DTP packages should find something to please

In addition to the latest fonts, distributors EM Computergraphic have now released several collections of the most popular fonts in the Safari range in special compilations two of which, the Future and Star fonts disks, recently landed on the *AC* welcome mat.

Star fonts is a bringing together on one disk of the most sought after Trekkie fonts, including those from the original TV series and the later New Generation stories, and is aimed squarely at the vast army of sadly addicted fans of the ageing Shatner and his crew of crumblies.



Font frenzy as EM Compugraphic take their safari fonts into the space age

Included in the collection is Tycoanus, MovieStar, the weird Romulus, along with a variety of supporting characters such as Primaton, Jupiter, and AliensOne.

Some of the typefaces are a bit creaky, particularly AliensOne, but as a compilation disk this one will no doubt be a hit with anyone who needs title fonts for space animations, Trekkie fanzines and so on.

FUTURISTIC

The second compilation disk we looked at, Future fonts, contains several general purpose futuristic faces, such as the excellent Airlock font, and the superb Nervous, a direct copy of the font used in the movie *Psycho* along with a few more down to earth typefaces.

College is a blocky all-American font of the sort used to emblazon college names on baseball jackets, and Motor City a copy of one of the 50s American car manufacturer's logos (could be Chevrolet, but I can't be sure), so there's a bit of non-space variety for the earthbound among us.

In all, the compilation disks, now including Serious, Display, and Script, are good value for money at £15, and offer the font user with a specific area of interest the chance to buy several sought-out fonts on one disk instead of having to trawl through an entire library, finding one on each disk. If this isn't enough, EM Computergraphic now offer a Pic 'n Mix service for those who need an exact list of typefaces.

● *For more information on Safari fonts, contact EM Computergraphic on 0255 431389*

Scenery Animator v4.0

Having developed alongside Vista Pro, and mostly overshadowed in the last year by its rival, Scenery Animator v4.0 has had to struggle to offer something different. In its latest version, it does just that.

The program has always been much easier to use than Vista Pro, particularly when it comes to creating animations, and has a less complex interface than the intimidating bank of buttons confronting the Vista Pro v3.0 user. However, as an update the program's two new features have a lot to say for themselves.

Support for AGA would have forced Natural Graphics to update their product in any case, but not all packages have found the jump to AGA an easy one. Some, like DPaint IV, have suffered for speed, and some have only incompletely accepted the new format. Scenery Animator v4.0 accomplishes the task with ease.

Ham8 and 256 colours have been added to both the Anim Mode and Render Mode menus, and HAM screens will render in hi-res interlace if the program is running on an A1200 or A4000.

Seamlessly integrating themselves into the main interface, the new AGA modes are fully and properly implemented.

The second major addition to Scenery Animator is its facility for loading 3D objects directly into the program to form part of a rendered scene, but this improvement is not without its problems, and loading some objects can have in very unpredictable results.

The only directly supported format is the VideoScape 3D GEO type, and only the Ascii version of this. Users with objects generated in other packages will have to use a conversion program such as Pixel 3D Pro to make use of their creations, and this is where the problems appear to arise.

In the conversion, a process which is seldom without problems, complex objects often pass from one program to another minus a face here or a bit there, and the final output can suffer badly as a result.

The problem is not with Scenery Animator, as genuine VideoScape objects work a treat, but if the package would import some of the more popular file types, such as Imagine, Lightwave, and Real 3D, the feature would be an infinitely more powerful and practical one.

Problems arising from conversion meant that when preparing images for this article, a great deal of faffing about was necessary with conversion programs and a variety of objects to find those which would transfer properly.

Having said this, the images generated are vastly improved by the addition of 3D objects, and if the user can find sufficient VideoScape 3D images or the correct settings from within a conversion program, Scenery Animator's output can look better than any other program of its kind.

The sample image we have provided shows a house nestling in one of Scenery Animator's ready supplied landscapes, and is augmented by the program's facility to place individual trees exactly where they are required.

With a little care, and perhaps the creation of a barn, some fencing, and the addition of the ubiquitous cow object provided with Imagine v2.0, a complete virtual farm could be built up without problem, with the proviso that the objects import properly.

Using Vista Pro, the nearest one could come to this sort of result would be to spatter some of the package's tombstone-looking "houses" around and add the odd unconvincing road, leading to nowhere near as gratifying a scene.

● *For more information on Scenery Animator v4.0, phone Meridian Software Distribution on 081-543 3500*

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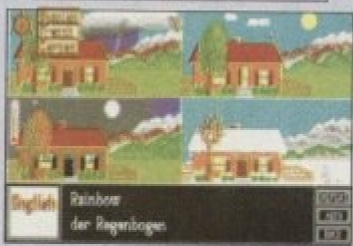
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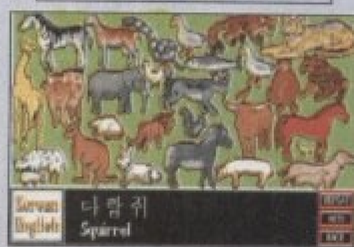
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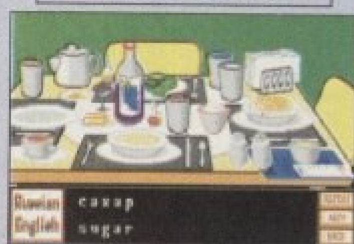
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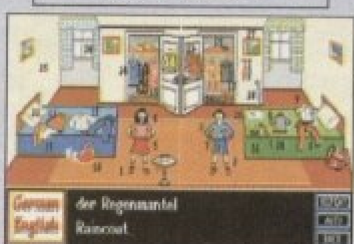
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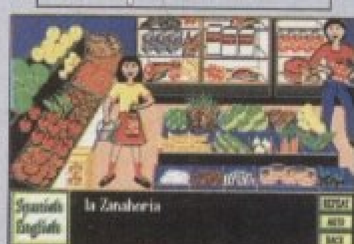
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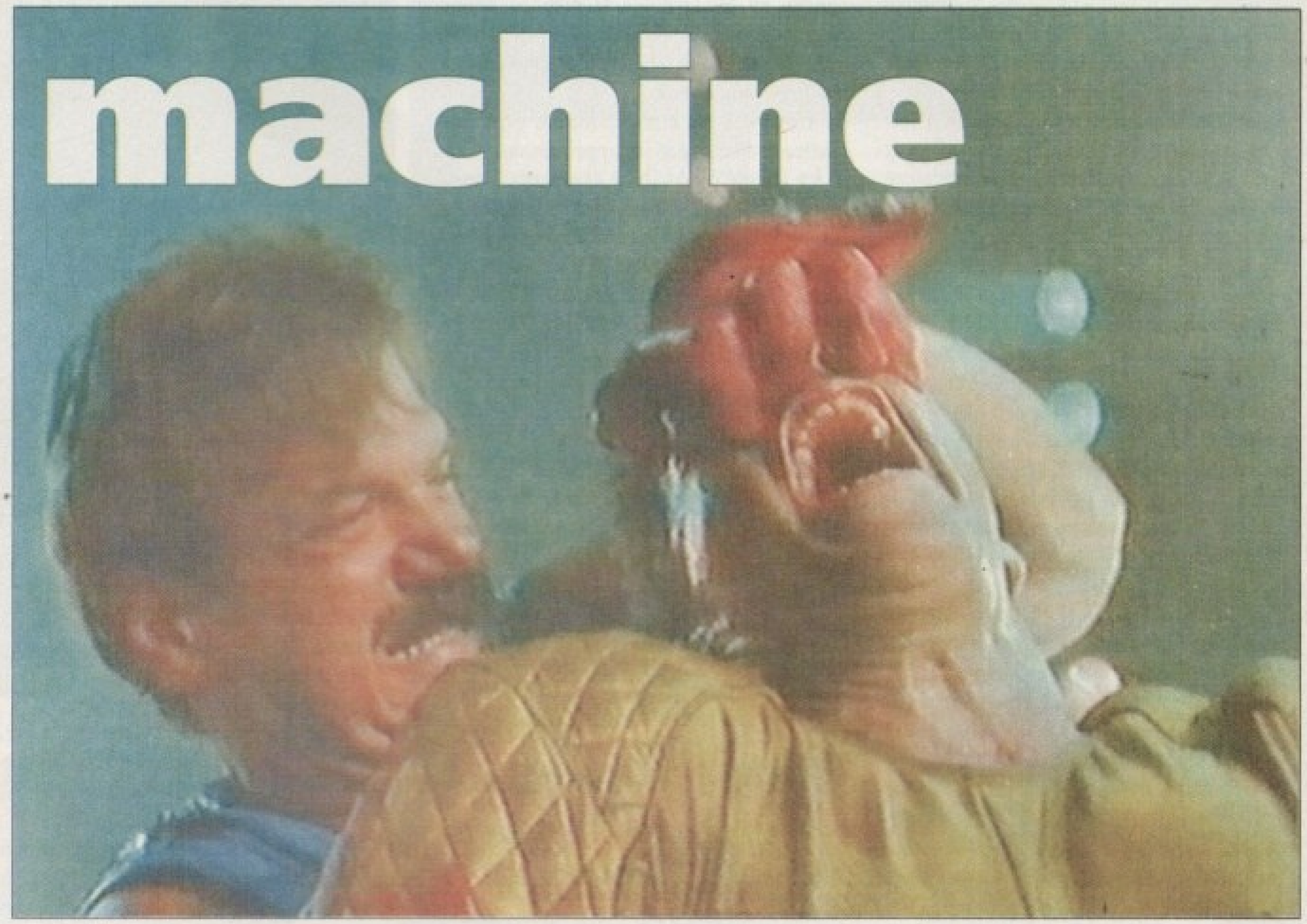
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The picture machine



Paul Austin plugs in FrameMachine and discovers it's a lot more than just another pricey picture importer

With the Amiga world already groaning under the weight of assorted video grabbers, is there really a place for another? After all, with products like VLab Y/C and IV24 v2 already providing spectacular quality at or below FrameMachine's £699 asking price, why reinvent the wheel?

With these elements already leaning in the opposition's favour I must admit it looked like FrameMachine was in for a rough ride right from the off.

However after just a little experimentation the Amiga's latest power product slowly but surely began to redress the balance.

Things got off to a flying start thanks to blissfully simple installation. Unlike the majority of expensive add-ons, FrameMachine slipped into the machine effortlessly. Better still, once the accompanying software was installed and subsequently clicked into life, totally glitch-free operation ensued.

In fact, in a rare break from tradition I had virtually no config or compatibility problems whatsoever. Even so, it must be said installation isn't always quite such a breeze.

TIGHT SQUEEZE

On A1500s and 2000s, for example, a special piggyback Denise connection is required to attain an appropriate video signal, while squeezing the card into the tight confines of the office A4000 did add the odd grey hair to my already impressive collection.

As you've probably guessed, a Zorro slot is essential, which alas can only be found on the A1500 and above. For those lucky enough to own an A4000 there's the added bonus of full AGA support in addition to all the older Amiga modes plus ILBM 24, RGB8 and YUVN for the experts.

With the thrust of FrameMachine being video grabbing, this seems the obvious place to start, but of course before any grabbing comes connection – which in the case of FrameMachine can mean both composite and S-VHS.

As usual all connections are made at the rear, alongside the board's genlock-compatible 23-pin RGB video-out plus a separate S-VHS-out for the optional Prism 24-bit frame buffer.



FrameMachine's excellent still frame capture

For those lucky enough to have two monitors, the 23-pin RGB has the added bonus of providing a dedicated FrameMachine preview while the normal Amiga signal appears on the machine's original monitor.

However, it must be stressed that a twin monitor system is not essential as FrameMachine has the ability to blend Amiga and FrameMachine output, which although not ideal is certainly a usable alternative.

Once connected, the next task is to set up the software preferences accordingly by specifying a Preview mode, which can vary from quarter screen lo-res up to hi-res non-interlaced – greyscale only, although if the aforementioned Prism 24-bit frame buffer is fitted, a full-colour, 24-bit preview can appear on the second monitor.

Assuming a suitable image appears, simply clicking the mouse instantly freezes the image within FM's internal memory and pops up a conversion requester offering most Amiga screen modes in varying sizes – with the exception of super hi-res.

All conversions can appear in both colour or greyscale, with optional dithering and overscan if required.

Of course there are always the three 24-bit save options if Amiga modes aren't suitable. Whichever format you choose, the program will first set about converting from its default YUV grabbing format and then update the screen with the one of your choice – assuming it's supported by the machine, of course.

CRISP IMAGES

In practice, single-frame grabbing is extremely easy with hotkeys and mouse clicks controlling the entire process, and better still the images themselves are extremely crisp. Even better than that, never once did FrameMachine produce a jittery image – even when grabbing fast action.

Like any self-respecting frame grabber, FrameMachine doesn't stop with single images and in fact sequential grabbing and support for animation is generally pretty impressive.

Again, with the assistance of Prism a whole host of compressed full screen grab sizes are available, and once captured the ➤

Useful array of tools

In addition to the main grabbing program, FrameMachine also ships with a useful array of utilities varying from simple screen clearing icons for prism to more complex genlocking or keying controls.

With Prism on-board, access to a general purpose 24-bit display is also pretty straightforward and to simplify the task two icons entitled PPlay and PShow provide access to a 24-bit preview of captured sequences and individual images – but as you'd expect, playback speed can pretty slow in the larger screen sizes.

Last but far from least comes Prism Preferences, which allows control over how the Prism output is to be combined with Amiga graphics. In addition the requester provides total colour, saturation, brightness and contrast control over the 24-bit display

And if you have access to an extra monitor or Scart compatible TV, it's here where a duel monitor setup is configured.

program's format conversion and sequence editing options are excellent.

Like VLabY/C, FrameMachine uses the aforementioned YUV grabbing format which then requires conversion just like a single frame. However the software makes a decent attempt at ADPro-style multi-processing thanks to various save formats, both 24-bit and Amiga, plus an array of palette tools.

Best of all, there's a truly excellent cutting (or editing) screen which allows your raw captives to be displayed in miniature and then cut, copied and recombined into a tailor-made anim or still sequence.

Although FrameMachine has an impressive array of grab sizes and direct 24-bit full-colour compressed preview via Prism 24. it remains a strictly linear grabbing system which means all the frames must be grabbed in succession – in real time.

Unfortunately this invariably means anything over quarter screen will skip frames during importation, which of course is reflected in any subsequent animation.

In total, six grab sizes are available with from full screen 720 x 570 hi-res interlace to 88 x 70 non-interlace – which is roughly the size of a postage stamp. Like single grabs, sequential imports can be either colour or B&W- – however, only full frame images can employ interlace.

Unfortunately because there's no alternative to linear importation, the sequence processing and editing tools are reduced from impressive power functions to mere playthings.

Alas, until FrameMachine can match the interleaved frame recording (ILR) available within YLabY/C, the card will remain irretrievably out-gunned when it comes to sequential frame grabbing.

Courtesy of the IFR, VLabY/C can capture video size images in full 24-bit, frame by frame without missing a single image. Thanks to some inspired programming, VLabY/C can make multiple passes, continually grabbing as much as possible while keeping a record of which frames remain, ready for the next pass.

In addition, VLab also supports FrameMachine-style linear grabbing and, of course, all standard and AGA modes are on hand via built-in processing options. The only drawback of VLabY/C is the lack of a built-in frame buffer.

However if a buffer becomes essential, Retina can be added for approximately £300 – for a basic model. Like Harlequin, Retina has VLab compatibility built-in, allowing grabs to be made direct to the board – and unlike FrameMachine, a paint package comes as standard.

With IFR in VLabY/C's favour and the Retina/VLabY/C combination matching FM's price point almost exactly, it appears that the new board is firmly on the ropes and on its way to the canvas.

However it's not over yet as FrameMachine fights back with Prism, extensive ADPro support, video compression and some very impressive genlocking options.

If simple frame grabbing is all you require, it is possible to buy FrameMachine minus the optional Prism 24-bit buffer, but if that's the case VLabY/C seems even strong buy than before.

> *Without doubt the best frame grabbing interface to appear within ADPro*

However ,when FrameMachine is combined with Prism, the humble grabber becomes a much more attractive proposition. On practical level, Prism provides FrameMachine with quite simply the best preview of any grabber with a variety of window sizes right up to full screen, all displayed at 25fps in full colour.

In addition, the grab itself appears instantly in the size of your choice – all in glorious 24-bit, of course. Better still, its talents aren't limited to grabbing. In fact, the same video compression techniques offer six sizes from full video down to an 88 x 70 rectangle which can be moved anywhere around the screen with the cursors, and scaled via hotkeys.

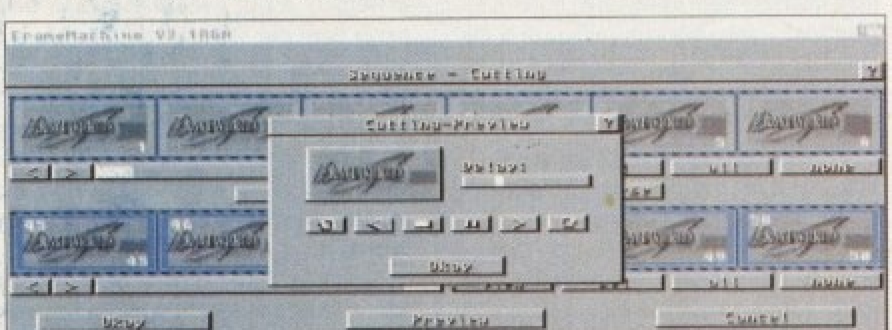
The window then appears as a PIP – or picture in picture – over Workbench, DPaint or whatever else. Although pretty impressive, this is only the beginning thanks to the board's 23-pin, genlock-compatible video-out.

Thanks to the video-out, a combination of compressed video and normal Amiga graphics can be sent to a genlock which can then strip colour zero replacing it with the incoming video, which appears behind the compressed video window while Amiga animation or titling adds the finishing touch.

The end result is a pseudo-graphics sandwich. As you can see from the screen shots, the overall effect is very impressive, and with careful placement, news-reader-style compositions are a breeze – complete with scrolling text and animation.



FM's PIP produces excellent pseudo graphics sandwich



The ultimate in on-screen cut and paste thanks to FM's excellent frame handling

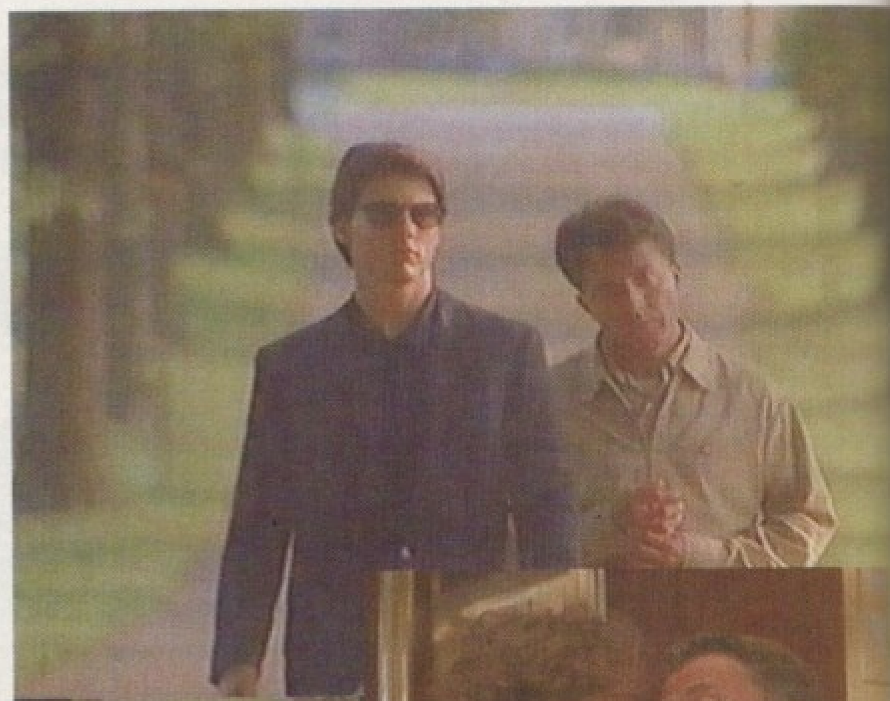


Image quality to match anything from the opposition



S-VHS importation providing near broadcast quality end results

SUFFERS

Like most power products, FrameMachine and Prism have leaped onto the ADPro bandwagon with an FrameMachine loader which provides direct access to the grabbing power of the board from within the ADPro environment.

In addition, a saver also allows direct access to Prism's 24-bit display. However it must be said after auto-scaling the image and rendering in what appears to be hi-res non-interlace, theimage quality does leave a lot to be desired in relation to other boards.

However having whined about the saver, it's only fair to credit the loader which without doubt is the best frame grabbing interface yet to appear within ADPro.

Unlike the VLab loader, the FrameMachine variant offers all the screen resolutions, preview and grabbing options available within the board's own software.

Even full-screen 24-bit previews are catered for and like the standalone, the loader invariably generates completely flicker-free imports.

All in all, FrameMachine is a very impressive product which has hit the streets just a little too late. If some form of IFR could be added to the system it may well become a world beater, but until then VLabY/C will definitely make life very difficult for the newcomer.

On top of that comes the lack of a paint package which again the VLab/Retina, IV24 and OpalVision already offer. Whether Prism can cope with such a thing remains to be seen but until both of these problems are resolved it looks like this potentially excellent product has just missed grabbing the AC

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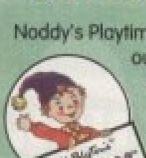
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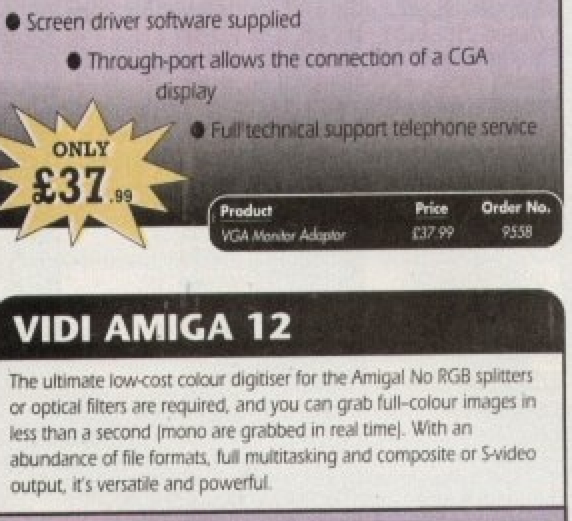
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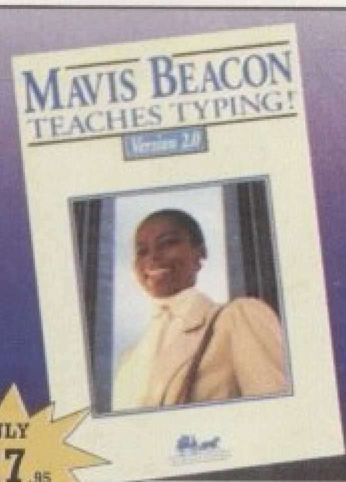


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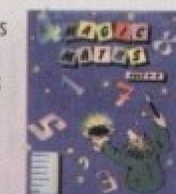
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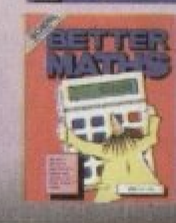
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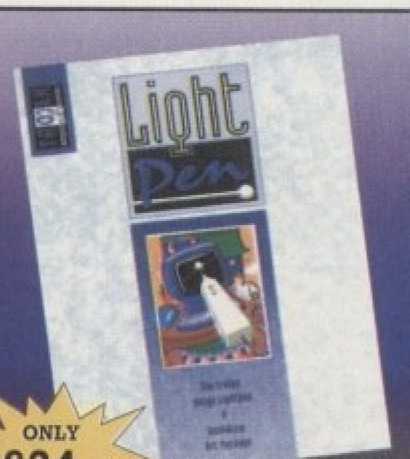


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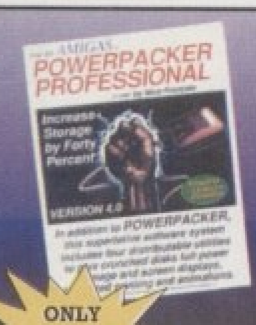


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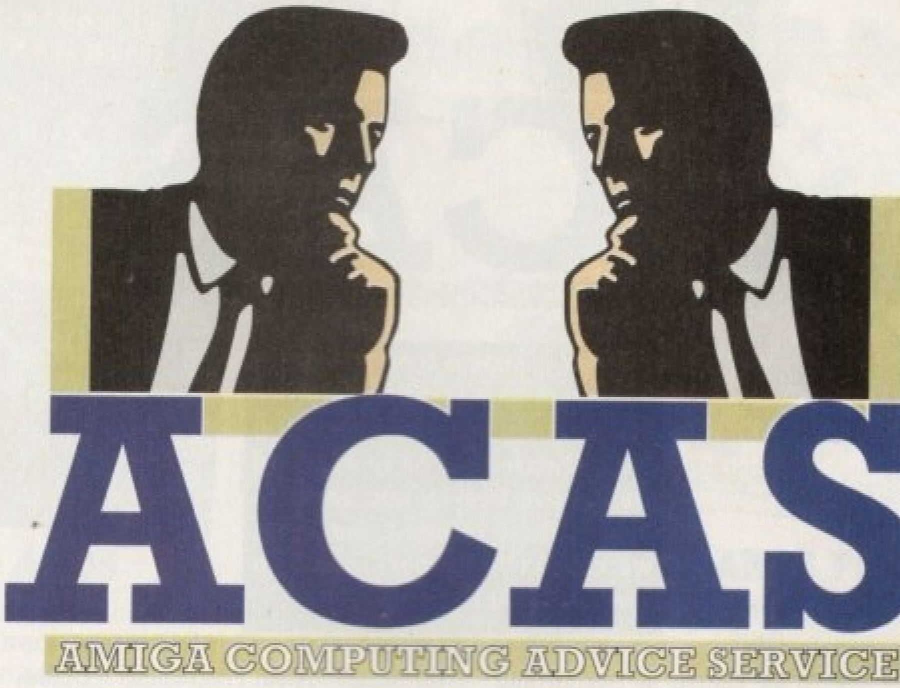
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This month we answer questions about the A1200, printers, Maxiplan, CineMorph Junior, DIY and more!



Potty ports

Q Help! The kids are driving me mad, the school holidays are killing me – anyway that's the steam let off.

I have just bought a Brother HJ100i (Canon BJ10EX), a lovely printer but since having it connected to my A500Plus, my external drive refuses to access any disk put into it.

Yet when I unplug the printer from the computer it works perfectly. Is there anything I can do about it? I've had the leads checked and they are OK and the printer has also been checked. Keep up the good work.

Ken Richards, Romford

A *The chances are that the fault lies with your Amiga, rather than your additional hardware. It sounds as though there is a problem with the CIA chips or one of the expansion ports.*

If you are competent with a multimeter and have circuit diagrams, you could check the ports yourself or, alternatively, just send your machine off for repair.

AGA Video

Q I previously used an A500 to produce a video of linked animations and stills to music, using DPaintIV for the graphics and TV-Show to provide the script when transferring to video, but became disenchanted by the limitations of colours and memory in hi-res.

I changed to an A1200 in January and upgraded DPaintIV to take advantage of it. I also had initial elation when I was given Amiga Vision free. Now the disappointment. TV-Show will not accept the number of colours and Amiga Vision similarly only takes lo-res 32 colours or hi-res in eight colours.

Never mind, I thought, I can use the DPaintIV player program. Bit more cumbersome than the other scripting programs but at least I could make hi-res and S-VHS video.

Not so. I could not get the player program to work with the A1200. I've telephoned Electronic Arts but have had no reply to my two telephone calls.

Your suggestions would be welcomed. Do I need another program and what will it cost?

V H Leadbetter, Bristol

A *You might like to consider buying Take 2 (v1.812) which handles Ham8 graphics. If you have a hard drive (and a healthy bank balance) you might like to look at Scala MM210 which also supports the AGA chip set and provides special effects, clip art and a nice selection of fonts.*

The mysteries of snapshot

Q I seem to have a problem with my A500. It's got 1Mb of RAM and a GVP 52Mb hard drive. The snapshot does not work any more. I have tried everything I can think of but I'm no expert with computers.

I've disconnected the hard drive and taken out the half meg card from underneath, plugged in the master disk of Workbench and it still does not work.

I've even tried Disk Doctor on df0: and dh0: but this shows no fault. It's driving me crazy because every time I open dh0:, dh1: or dh2: I have to keep on stretching the windows open and all other windows to get to all the other programs and games. Please help me, it's driving me mad.

I don't think it's a fault with Workbench because this problem occurred after it was installed on the hard drive. But, as I said it won't work even with the drive off and on the original Workbench disk. Where has snapshot gone?

Mr K Curtis, Croydon

A *Snapshot on the A500 (and all 1.3 Amigas) works in a mysterious way – compared to Workbench 2 that is. As you are probably aware, to snapshot one icon you should click on it then select snapshot. To get Workbench to remember the position of a window you would therefore expect to click on a window then select snapshot. Not so, as the WB1.3 snapshot only works when an icon has been selected.*

In order to snapshot a window, resize and position it as required then click on the drawer icon that was used to open it and snapshot that. For instance, if you had a drawer called Fred you would open the drawer, position the window, click on the Fred icon then select snapshot.

If you wanted to position the window so that it obscured its drawer icon, you would have to use extended select. In other words hold down the Shift key, click on the drawer icon, position the window over the icon, snapshot then release the Shift key.

A1200 printer incompatibility

Q We all knew that some software would not work on the A1200 and some discovered that add-on floppy drives could be a problem but have you heard of a printer that appears to be incompatible?

I own a Canon PW1080A 9-pin dot matrix. I purchased it eight years ago to use with my old Beeb. Three years ago I bought an Amiga 500 with which it still worked satisfactorily.

Having decided to upgrade to a hard disk A1200, while I was buying it from We Serve in Portsea I happened to mention which printer I used.

They told me that a previous customer had found that it would not work with the 1200. To be honest I did not believe them but no matter which driver or DIP settings I use I cannot make it work other than the printer initialising when switching the computer on or off.

I wrote to Commodore and Canon six weeks ago but have not received a reply from either. Please can you help.

Derek Nunn, Hassocks.

A *Other than what you have told us, we don't have any knowledge of compatibility problems with this printer. If any other readers contact us with details of how to get it working with an A1200*

➤

A1200 printer setup

Q I own an Amiga 1200 and have just purchased a Canon BJ-10sx bubble jet printer. When I installed the BJ-10 printer driver from the storage disk, to the Workbench disk in the Devs/Printer drawer with the default (generic) printer driver I thought how easy it was.

But when the printer prefs window is displayed on the Extras disk, there's no sign of the BJ-10 or generic drivers in the printer type window. What has gone wrong?

I have very little knowledge of computers but I have followed the instructions to the letter in Bruce Smith's *Amiga 1200 Insider Guide* series. I have played about with the printer prefs and found that if I open the printer prefs editor both printer drivers are displayed but when I select OK I get the message: Error processing IFF file Devs:printers/BJ-10.

Please help as this is driving me mad.

Mr S Eley, Market Drayton

A *Installing a printer driver involves two tasks: Copying the correct printer driver to the Devs drawer of the Workbench disk and selecting the driver to use from within the printer preference editor.*

However, there is a mistake in the Workbench 3 User's Guide. The second step in copying a printer driver to the Workbench disk should read:

2. Insert the Storage disk into your disk drive and open its window.

As you can see, the printer drivers are on the Storage disk and not on the Extras disk. All the other steps for copying a printer driver to the Workbench disk are correct.

The error message that you received was generated by the PrinterPS preference editor. This editor is used to set up printers that have PostScript capabilities and the error arose because the Cannon BJ-10sx is not a PostScript printer.

Having copied the Canon BJ10 printer driver to the Workbench Devs drawer you should use the Printer preference editor to select the driver. The preference editor that you need to use is located in the Prefs drawer of the Extras disk and is called Printer. Use it to select the CanonBJ10 printer type, set any other preferences that you require, then click on the Save button.

we will let you know through these pages.

In the meantime, you could try phoning Canon with details of the A1200 port pins to see if they can help. You could also call Wang out to check your machine as it has a one-year on-site warranty.

ACAS

AMIGA COMPUTING ADVICE SERVICE

You got problems too? Then drop a line to Amiga Computing Advice Service, Europa House, Adlington Park, Macclesfield SK10 4NP and we'll move heaven and earth to help in these columns. But sorry, we cannot reply personally, so save those SAEs.

CineMorph Junior & DPaint

Q I own an A600 and have just bought the August issue of your magazine. I am having problems trying to load my own files created with Deluxe Paint 3 into CineMorph Jr.

I have tried putting .JPG on the end of all the filenames, but when I try to load them, no picture comes up on either the source or destination windows.

Also, how do I access Disk Doctor? I have heard that it is on the Workbench disk but cannot find it.

J Allonby, Rotherham

A *CineMorph Junior is capable of handling DPaint pictures but, by the sounds of things, the ones that you are trying to load take up too much RAM. The solution is to load your pictures into DPaint as brushes, half their size then save them to disk before loading CineMorph Junior.*

Disk Doctor was not included with Workbench 2 and is no great loss. You would be better off with a utility like Disksalv2 – and where would you find such a marvellous program? Look no further than the October CoverDisk.

Mouse/joystick switcher

Q I am a student in my tenth year at Holy Family College. I am currently carrying out research for my GCSE course in Design and Technology.

The research that I collect should help me produce an electrical or mechanical device. For my project I have decided to investigate a mouse/joystick switcher for my Amiga 500, such as the RoboShift device.

I would be very grateful for any information concerning the mouse/joystick switcher, especially the inner workings of such a device. Again, thank you in advance for helping me out.

Richie Prado, London

A *As you are working towards an examination it would be unfair on other candidates for us to explain exactly how a mouse/joystick switcher works.*

However you might care to look in the Amiga System Programmer's Guide from Abacus (ISBN 1-55755-034-4) which describes the gameport hardware and how it is used.

Colour laser printers

Q As a long-time subscriber to your excellent magazine I value your opinions on all things Amiga and would therefore like to ask you about a subject that no Amiga magazine seems to touch on: Colour laser printers.

At present I run an A4000/030 (a superb machine) which is connected to a Panasonic KX-P4420 laser printer (also a fine machine) to produce pictures, scanned images, verses and so on using PageStream, Art Expression, Wordworth and DPaint IV which I then sell to friends for personalised presents for christenings, birthdays... you get the picture (ha ha!).

Of course, the Panasonic is a mono non-PostScript printer and I am sure my portfolio (and my sales!) would increase if I could offer my customers a more colourful product.

I already own an NEC P90 colour dot matrix printer so I know dot matrix is definitely out, and my test drives of inkjets such as the HP550C show that these printers also fall short in producing consumer-acceptable quality.

At last, we reach colour laser PostScript printers! Yes, I know they are expensive – a QMS Colorscript is £3,000+ and the NEC Colormate PS/80 is well over £4,000 (they are advertised in a PC magazine), but if they produce colour images to the quality of a mono laser I would seriously consider purchasing one.

Presumably, being PostScript they can be driven by the Postscript printer driver installed on my hard disk, yes? If not, the manufacturers should be able to produce a driver if they want to make a sale.

These printers seem to come with 4Mb or 8Mb of memory as standard – is this sufficient to produce a full colour A4 picture?

Before I get carried away and start asking too many questions about a specific product, perhaps you would consider running a one-off comparison test between various colour laser printers?

It's something none of the other Amiga magazines have done yet, as far as I can remember, so there could be a little one-upmanship for you.

Thanks for taking the time to read this letter and any advice from your good selves would be gratefully received.

Philip Hawkins, Berks

A *It should be possible to use the PostScript driver with any PostScript printer. We expect that any manufacturer worth their salt would go out of their way to help you if this was found not to be the case.*

The amount of printer memory does not affect whether or not a full colour A4 picture can be output. However, the larger the printer buffer, the less time your Amiga will be tied up. A 4Mb buffer should be just about the right amount to hold an A4 page but clearly having 8Mb would be your best option.

Finally, not many Amiga owners can afford mono laser printers, never mind colour ones. An article comparing colour laser printers would have limited appeal to our readers and we are unlikely to cover them in the foreseeable future.

Open Sesame

Q I would like all my CoverDisks while booting to ask for a password to continue loading. Are there any commands which I could add to the startup-sequence which would do this? Or would I have to write a program and add it to the startup-sequence? If this is the case, I own Amiga Basic, Amos, HiSoft Basic and Devpac 2. Which should I use?

I have written a password program in Amiga Basic but I don't know how or if it can be added to the startup-sequence to run while booting. Could you please help me?

Janet Haloway, Rugby

A *It would be pointless to try to protect a CoverDisk because anyone who wanted to use it without your permission could go out and buy their own copy (or send off for back issues).*

Even if you did write your own program, what is there that would prevent someone by-passing your protection? Answer: nothing.

Using CrossDos With Maxiplan

Q I read with interest your reply to Martin grundy about installing Maxiplan on hard disk and running it from Workbench. I don't have a hard drive but run my wordprocessors and so on from Workbench, so I copied the explode library to my Workbench libs drawer and it runs OK.

My problem is that I have installed CrossDos on a Workbench disk and while Wordperfect and Kindwords recognise CrossDos, Maxiplan doesn't.

On Wordperfect or Kindwords the file requesters both show DF0:/PC0: or DF1:/PC1: but not Maxiplan. Any suggestions please?

Both my wife and I are new to computing as we only bought the machine and external drive in February this year. I find the Shell frustrating if you get your spaces and colons in the wrong places.

A little tip I picked up in one of the mags I read each month is that if you select Show All files from the Workbench screen instead of going into the Shell, you can move, copy, delete and so on from the Workbench.

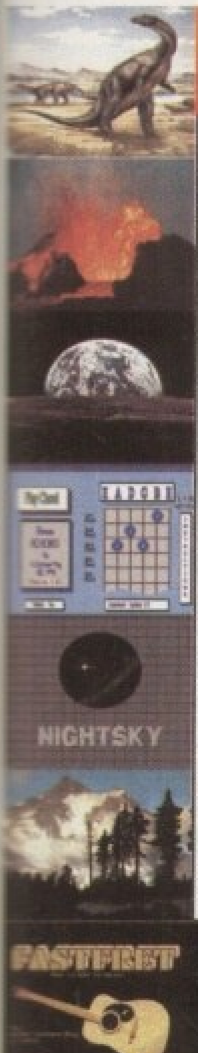
Also, to take up less room, select View By Name from the pull-down menus. I think though, these two options are only on WB2 and above but I'm not sure, but it makes life a lot easier if like me you're not techie.

Peter Fox, Doncaster

A *Many thanks for passing on the Workbench tip, if you have found it useful then we are sure there are other newcomers who will also find it beneficial. In answer to your CrossDos query, try typing PC0: into the path field of the file requester.*

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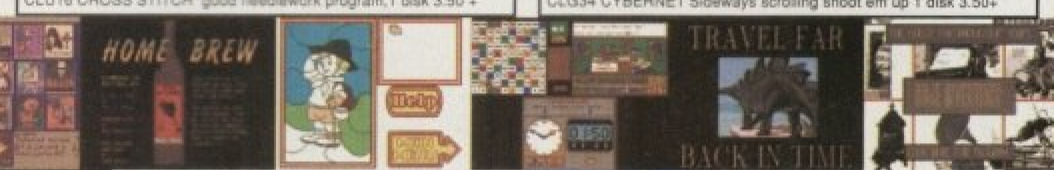
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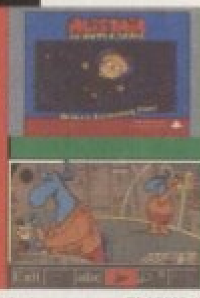
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a superb collection of coloured clipart, in Ham mode (4096 colours), though some is colours. Can be loaded into Deluxe Paint 4 other package accepting Ham pictures! 500, 500+, 600, 1200 & 4000!)

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MAPS. Denmark - Grenada , hires maps! +Y
MAPS. Guadel - Illinois, hires maps! +Y
MAPS. India - Luxembourg, hire maps! +Y
MAPS. Macau - Missisipi, autoboots! +Y
MAPS. Montana - New York, hires maps! +Y
MAPS. Neutral Zone - Iraq - S Dakota! +Y
MAPS. Senegal - Tuuaw, autoboots! +Y
MAPS. Texas - Zimbabwe, autoboots! +Y
REPTILES, good pictures, autoboots! +Y
ACTORS, famous faces, autoboots! +Y(2)
AIRCRAFT, 1-26, assorted, autoboots! +Y
AIRCRAFT, 27-32 & Cars! autoboots! +Y
BIRDS, 1-12 Super pictures, autoboots! +Y
BIRDS, 13-29 More avian pictures! +Y
BIRDS, 30-41 Lots more birds,autoboots! +Y
BIRDS, Many more bird pics, autoboots! +Y
BIRDS, And some more fab pictures! +Y
BIRDS, 116-130 Some good pictures! +Y
BIRDS, 131-138 More bird pictures! +Y
BIRDS, More superb pictures here! +Y
CATS, 1-16 Super cat pics,autoboots! +Y
DOGS, 1-126 Super dog pics,8 disks! +Y
EXPLORERS 1-13 famous explorers,autoboots+y
FISH 1-92 Super pics pictures,(4 disks)+y
FLOWERS 1-13 Flower pictures,autoboots!+y
FLOWERS 14-25 More flower pics,autoboots!+y
FLOWERS 26-37 More flower pics,autoboots!+y
FLOWERS 38-50 More flower pics,workbench+y
FLOWERS 51-62 More flower pics,autoboots!+y
FLOWERS 63-74 More flower pics,autoboots!+y
FLOWERS 75-87 More flower pics,autoboots!+y
FLOWERS 88-100 More flower pics,autoboots+y
FLOWERS 101-113 More flower pics,autoboots+y

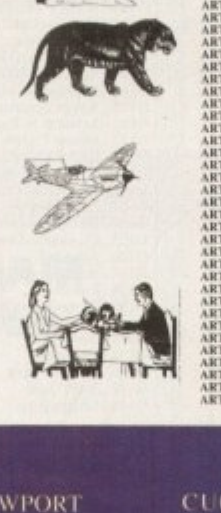


CCL050 FLOWERS 114-127 More flower pics,autoboots+y
CCL051 FLOWERS 128-138, FRUIT 1-4 pics autoboots+y
CCL052 FRUIT 5-18, Good pictures! autoboots! +Y
CCL054 FRUIT, More fruit & leaves etc! autoboots+Y
CCL055 FRONTIER 1-13 Pioneer pictures,autoboots
CCL056 HORSES 1-16 Great horse pics,autoboots! +Y
CCL057 HORSES 17-22, insects 1-9, autoboots! +Y
CCL058 INSECTS 11-23 Small creatures! +Y
CCL059 INSECTS 24-41 More pics! autoboots! +Y
CCL060 INSECTS 42-59 More insects! autoboots! +Y
CCL061 INSECTS 60-63, Inventors 1-11 autoboots! +Y
CCL062 INVENTORS 12-24 More inventors autoboots! +Y
CCL063 INVENTORS 25-30, MAMMALS 1-10! autoboots! +Y
CCL064 MAMMALS 11-26 More animals pictures! +Y
CCL065 MAMMALS 27-46 and more animals! +Y
CCL066 MAMMALS 45-65 more mammals,autoboots! +Y
CCL067 MAMMALS 66-82 and some more! autoboots! +Y
CCL068 MAMMALS 83-102 and many more autoboots+Y
CCL069 MAMMALS 103-119 many more! autoboots! +Y
CCL070 MAMMALS 121-141 superb pictures! autoboots +Y
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CCL077 PREHISTORIC 20-25, PEOPLE 1-8 autoboots! +Y
CCL078/80 PEOPLE 9-50 Lots of people! (3 disks)+Y
CCL081 PEOPLE & Presidents, good pictures! +Y
CCL082/4 PRESIDENTS 1-40 USA presidents,3 disks +Y
CCL085 REPTILES 1-19 Good pictures autoboots! +Y
CCL086 REPTILES 19-38 More reptiles! autoboots! +Y
CCL087 REPTILES 39-50, Ships 1-9,autoboots! +Y
CCL088 SHIPS 10-33 Marine vessels! +Y
CCL089 SPORTSMEN. Various sportsmen,autoboots! +Y
CCL091 TREES, Lots of tree pictures! autoboots! +Y
CCL092 TREES, Lots more tree pics! autoboots! +Y
CCL093 TREES, And some more trees! +Y
CCL094 TREES 57-70 trees lots of trees,autoboots!+y
CCL095 TREES 71-84 more tree pictures, autoboots!+y
CCL096 TREES 85-100 even more trees,workbench!+y
CCL097/100 VEGETABLES 1-48 good pics 4 disks,workbench+y

CLASSIC CLIPART (Black & White)

(Okay on A1200 / A4000.)
The clipart in this collection is very high quality, huge bitmaps, many greater than an Amiga hires screen, for use in Dpaint or DTP packages, each disk autoboots as a slideshow allowing you to view the entire bitmap by moving the mouse! (Prices per disk!)

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ART30 COLOURING BOOK Colour in Dpaint!+
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ART38 VEGGIES Vegetarian clipart!+
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ART41 DOG WOODCUTS Super 300dpi pics!+
ART42 CAT WOODCUTS Great wildcat pics!+
ART43 AFRICAN WOODCUTS African animals!+
ART44 AMERICAN WOODCUTS More animals!+
ART45 ARTIC WOODCUTS Northern animals!+
ART46 FARM WOODCUTS Farm animals!+
ART47 MIXED ANIMAL WOODCUTS Nice pics!+
ART48 BIRDS WOODCUTS 18th century bird pics+
ART49 MORE ANIMALS More superb pictures!+
ART50 ANIMAL LINEART Varied selection of pics
ART51 BOTANICAL ART detailed plant pics!+
ART52 FAMILY SCENES 2 disks of domestic life!+
ART53 GOLF HUMOUR 2 amazing cartoon disks!+
ART54 SPACE & TRANSPORT On a space theme!+
ART55 SOFTSCENE2 29 rural scenery pictures!+
ART56 SPORTS3 More pics on a sports theme!+
ART57 NAVY Lots of naval type pictures!+
ART58 TRAVEL 2 disks on a travel theme!+
ART59 ALPHABET Borders & alphabet clips!+(2)
ART60 ACCENTS & FLASHES Burst stars+ more+
ART61 FISH Lots of aquatic pictures! +Y
ART62 SOFTSCENE 3 More nice scenery pictures! +Y
ART63 RESTAURANT 3 disks of Restaurant pictures(3)+Y
ART64 MORE HOLIDAYS Festive holiday pictures! +Y
ART65 ANIM & BIRD 44 nice pictures! +Y
ART66 MOSSBURN ANIMALS 32 nice animal pictures! +Y
ART67 BURCHFIELD KIDS Some nice kids clipart! +Y
ART68 BEAST & MYTH 3 disks of Monsters,demons etc!(3)+Y
ART69 TRANSPORT 3 disks of Cars,Airplanes Ships etc!(3)+Y
ART70 TRUCKS & TRAINS Full of Wagons trains etc! +Y
ART71 ASTROLOGY 2 disks of astrological signs! +Y
ART72 AIRCRAFT 3 disks full of aircraft pictures!(3) +Y
ART73 BIRDS Songbirds, Birds of Prey & more! +Y
ART74 DOGS Disks full of good dog pictures! +Y
ART75 HOUSES CASTLES & BUILDINGS Good pics +Y
ART76 SPORTS-MAC Lots of good sports pictures! +Y

PROGRAMMERS : Have you written a good program, ie a utility, educational program or a game? Why not send it in for evaluation? If its really good, then you too could be earning money!!!

BLITTERCHIPS

CU09, CLIFFE HOUSE, PRIMROSE STREET ,KEIGHLEY, BD21 4NB.
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The prize winners will be informed in writing within two months of the closing date. Result information may be obtained by writing to our offices. No cash alternatives to the prizes are available. The editor's decision is final. No correspondence will be entered into.

Calls are charged at 36p per minute cheap rate and 48p per minute at all other times.

Hardware

1. Best video add-on

a ☐ VLab/VLab Y/C
b ☐ IV24 v2
c ☐ Retina
d ☐ Harlequin
e ☐ OpalVision

2. Best hard drive

a ☐ Trifecta 500 LX
b ☐ GVP HD8+
c ☐ IVS Trumpcard 500AT
d ☐ GVP A530
e ☐ Zappo A500 external

3. Best RAM expansion

a ☐ Power PC1204
b ☐ GVP SCSI-RAM
c ☐ Reference 8Mb A500 ext.
d ☐ Microbotics MBX1200
e ☐ Power 8Mb A500 external

4. Best music add-on

a ☐ Miracle keyboard
b ☐ Sunrize AD516
c ☐ DSS8+
d ☐ Triple Play Plus
e ☐ One Stop Music Shop

5. Best printer

a ❑ Epson EPL5000
b ❑ HP Deskjet (all models)
c ❑ Canon BJ10
d ❑ Citizen Swift 200
e ❑ Star LC-200

6. Best monitor

a ❑ CBM 1084S
b ❑ Philips CM8833 mk2
c ❑ CBM 1942
d ❑ NEC 4FG
e ❑ CBM 1960

7. Best scanner

a ❑ Epson GT6500
b ❑ Power ColourScan
c ❑ AlfaData ColourScan
d ❑ Sharp JX100
e ❑ Migraph OCR

8. My choice for overall best hardware add-on of 1993 is:

....

Software

9. Best wordprocessor

a ❑ Protext 5.5
b ❑ Wordworth 2
c ❑ Kindwords 3
d ❑ Final Copy II
e ❑ Excellence 3

10. Best office package

a ❑ Maxiplan 4
b ❑ Superbase Personal
c ❑ Superbase Pro 4
d ❑ ProCalc
e ❑ Supra GPFax

11. Best productivity

a ❑ Directory Opus
b ❑ Art Dept Professional
c ❑ Amiback Tools
d ❑ Quarterback Tools
e ❑ ProControl

12. Best language

a ❑ Lattice SAS C v6
b ❑ Amos Pro
c ❑ Blitz Basic 2
d ❑ HiSpeed Pascal
e ❑ Devpac 3

13. Best Art Package

a ❑ Brilliance
b ❑ DPaint 4
c ❑ Personal Paint
d ❑ Art Department Prof.
e ❑ Art Expression

14. Best DTP package

a ❑ ProPage 4
b ❑ PageStream 2.22
c ❑ PageSetter 3
d ❑ Final Copy II
e ❑ The Publisher

15. Best 3D package

a ❑ Real 3D v2
b ❑ Imagine 2.0
c ❑ Amos 3D
d ❑ Caligari 24
e ❑ Aladdin 4D

16. My choice for overall best software of 1993 is:

....

Games

17. Best arcade/ platform

a ❑ Flashback
b ❑ Superfrog
c ❑ Desert Strike
d ❑ Body Blows
e ❑ Pinball Fantasies

18. Best sports sim

a ❑ Sensible Soccer
b ❑ Goal!
c ❑ Archer McLean Pool
d ❑ F1 Grand Prix
e ❑ Microprose Golf

19. Best strategy/ war game

a ❑ Diggers
b ❑ Populous 2
c ❑ Megalomania
d ❑ Civilization
e ❑ War in the Gulf

20. Best adventure

a ❑ Monkey Island 2
b ❑ Indiana Jones and the fate of Atlantis
c ❑ Curse of Enchantia
d ❑ Eye of the Beholder 2
e ❑ Darkseed

21. My choice for overall best game of 1993 is:

....

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+ 1304	SUPERDARK 15.B	Fantastic screen blanker
+ 1305	AUDIO MAGIC 3	Some more great Music Utilities
+ 1306	AUDIO MAGIC 4	And more, featuring Music Rippers, Players, Source code etc.
+ 1308	RACCOON BACKDROPS FOR WB2.X, 3.X	Some BackDrops for WorkBench
+ 1309	RICOH LP1200 & DESKJET 550C PRINTER DRIVERS	
+1400	SUPERDARK V2.01	A fantastic update of this fantastic screen blanker collection
+1401	PLAYSID V2.2	Plays some great C64 tunes, synth type instruments etc.
+1402	TRANSPLANT	A great game supports A1200
+1403	DISKSALV NEW	A great disk salvage utility, the best
+1404	RSYS 12	
+1405	VIEWTEK V1.04	Displays 24-bit pictures
+1406	CSH SHELL V5.31	A shell replacement makes life easier
+1407	GRAPHICS MIX	JPEG and GIF viewers inc FASTGIF
+1408	TERM V3.4 (2 disks)	The best Comms package available, requires WB2.X
+1410	SPOT	Fidonet utility for you Comm buffs
+1411	AMIGAGUIDE V1.43	The latest Amigaguide distribution
+1412	BENCHMARKS	Latest version of various Benchmark Progs, AIBB, SYSINFO etc.
+1413	TERMINUS	JR Comm 2, another great Comms package
+1414	DELITRACKER V1.36	Play almost any kind of sound/music modules form Workbench
+1415	SOUNDMON MODS A-G	Some great music modules (can be used with above)
+1416	SOUNDMON MODS G-S	Some more great modules for above
+1417	SOUNDMON MODS S-Z	And more great modules to be used with Delitracker
+1418	GOLD ED	A fantastic editor, fully functional with full instructions

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+ 915	MISSILE COMMAND	
+ 916	AMEOBA INVADERS	
+ 917	ROLLERPEDE, INVADERS	
+ 918	AMIGA DRAGON TILES V2.5	Great tiles game
+ 919	ZEUS	
+ 920	HOLLYWOOD TRIVIA	
+ 922	THE SIMPSONS	
925	WIZZY'S QUEST	
+ 926	THINK TWICE	Master Mind
+ 927	HYPER-BALL	Arkanoid clone
+ 929	SEALANCE	Submarine Sim, Good
+ 930	SHAPES	Good for Kids
+ 931	WACKO Jr	In Wonderland
+ 934	SCRABBLE	
+ 935	WORMHOLE	
+ 936	ANAGRAMS	
+ 939	SKY FLYER	
+ 940	GALACTIC FOOD FIGHT	
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+ 943	ARCADE CLASSICS	inc space invaders
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+ 945	CARD GAME	S lots
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+ 948	TETREN	Best Tetris Clone out
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+ 952	YUM YUM	
+ 953	BATTLEMENTS	Remember HUNCHBACK?
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+ 956	PIPELINE. Like Pipemania	Good
+ 957	MATHS ADVENTURE	Excellent Maths Quiz
+ 1050	SURVIVOR	Dungeon Master Type Game
+ 1051	ESCAPE	Escape from the Dodgy Floor
+ 1052	BEAST	Corner the Beast
+ 1055	QUADRIX	Brilliant Puzzle Type, 10/10
+ 1056	CROSSWORD CREATER	
+ 1057	QUESTIONTORT	Create Multi/Choice Quiz's
+ 1092	ESCAPE V.3 +	Snowgame
+ 1100	GX200	New game
+ 1106	MENTAL IMMAGE GAMES 1	c64 type great
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+ 1155	ANTEP	New
+ 1156	TOP SECRET	New
+ 1157	MASHIE NIBLICK GOLF	Golf
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+ 1174	DONKEY KONG	Great conversion
+ 1175	FULL HOUSE	Play your cards right!
+ 1176	SPACE TRAX	Space game
+ 1177	TURBO THRUST	Good new Thrust game
+ 1186	RAID	Very similar to SWIV
+ 1187	X.F.I. & H-BALL	Like Tron
+ 1188	DOWNHILL CHALLENGE	Ski-ing
+ 1189	MEGABALL	Arkanoid Clone
+ 1190	PUGGLES	Remember Cuddly Cubert
+ 1193	OTHELLO	New
+ 1205	SANITY	Brilliant new game, slideshow & fab music
+ 1250	PETERS QUEST	Text Adventure
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+ 1252	BATTLECARS II	The sequel, great 3D
+ 1253	DESERT STORM	The Gulf War Mission
+ 1254	CRAZY SUE II	Fantastic Platform Game
+ 1255	PIPE	A great classic on other machines
+ 1256	ASSASSINS GAMES 43	More from Assassins
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+ 1295	NOSTROMO GAME CHEATS	Almost 600 great game cheats (The Latest)
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+ 1297	NUMERIX	A game similar to Scrabble, using numbers instead of letters!

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+ 840	TEXT PLUS V3.0C	WORD-PRO MENU DRIVEN AREXX SUPPORT THE BEST
+ 710	AMIBASE	POWERFUL EASY TO USE DATABASE WITH 4 MATHEMATICAL FUNCTIONS
+ 858	JR-COMM 1.02	THE LATEST VERSION OF THIS COMMS PROGRAM GOOD
+ 704	NORTH 'C'	UNPACK ONTO 2 DISKS COMPLETE 'C' ENVIRONMENT
+ 688	DISK SALV	MUCH MUCH BETTER THAN DISKDOCTOR ON W.B
+ 681	BATTLEAXE ICON STUDIO	THE TOP ICON MAKERS AND EDITOR WITH SOME ICONS
+ 683	D.K.B. TRACE	EXCELLENT RAY TRACE PROGRAM
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+ 703	GRAPHIC UTILITIES	TOTALLY PACKED WITH GRAPHIC STUFF
+ 781/2	DYNAMITE FONTS 1 & 2	2 DISKS FULL OF FONTS TO USE IN DPAINT ETC
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+ 885	AUDIO MAGIC V1	FULL OF USEFUL MUSIC SEQUENCERS & SOUND RIPPERS
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- U191 **DELTRAX UTILITIES 1**
- U192 **DELTRAX UTILITIES 2**
- U195 **LITTLEBENCH** Alternative WB
- U196 **BROTHERHOOD UTILS 1** Diskwork
- U197 **BROTHERHOOD UTILS 2** 30 in all
- U198 **BROTHERHOOD UTILS 3** Virus killers etc
- U206 **ENERGY UTILITIES** – 37 in all
- U229 **GAMES CHEAT LIST 2**
- U230 **INSTALL** Install your disks without the CLI
- U237 **THE GURU V2.0** A500+/A600. For your kick
- U241 **WHAT IS V1.2A** File utility
- U242 **MSH V1.3** Handles MSDOS files
- U260 **SUPERLOCK V1.01** Security prog, lock off Amiga
- U262 **DARKSTAR UTILS 2** Full of ideas
- U263 **DARKSTAR UTILS 3** lots
- U264 **DARKSTAR UTILS 4** more
- U267 **ARP V1.3** Alternative commands
- U271 **NBS SPEEDBENCH** Fast loading W/Bench
- U282 **SUPER C DIR TOOLS** Fast use of C
- U288 **EYE OF THE BEHOLDER CLUES** Hints
- U297 **COMPUTEREYES ICONS**
- U308 **AMOS COMPILER UPDATE 1.34**
- U318 **MULTIDOS** PC>Amiga
- U320 **CLI-UTILS** Very useful
- U321 **AMOS 1.34 UPDATE**
- U323 **WINDOWS BENCH V2.0** (2)
- U330 **FLASHDISK RELEASE 3** Optimiser
- U331 **ASSASSINS HANDY TOOLS V1.0** 15 utils
- U332 **ASSASSINS HANDY TOOLS V3.0**
- U343 **WORKBENCH HACKS** (A500+/A600*)
- U346 **PROF DEMO CREATOR V1.1**
- U349 **SUPER POWER PACKERS**
- U350 **MYSTIX MOD 3**
- U351 **WORKBENCH HACKS**
- U252 **C-COMMANDS**
- U356 **PHANTASMAGORIA** Hardware Collection
- U361 **ROM** Directory util
- U391 **HACKTAR 1.6** Adv Creator
- U392 **STD CODE FINDER U.K.**
- U393 **RAD BENCH 1.4** Make use of your RAM
- U396 **FILE FINDERS & Q MOUSE**
- U399 **TOGGLE CLICK** A600/A1200 only-Stops drive click
- U404 **ENGINEERS KIT** Diagnostic tools
- U405 **SLEEPLESS NIGHTS 3** (A1200 only) Utils
- U408 **TOOLS FANTASTICA**
- U411 **A1200 UTILS**
- U383 **LSD LEGAL UTILS 32**
- U417 **LSD LEGAL UTILS 33**
- U418 **LSD LEGAL UTILS 34**
- U384 **LSD LEGAL UTILS 43**
- U385 **LSD LEGAL UTILS 44**
- U386 **LSD LEGAL UTILS 45**
- U387 **LSD LEGAL UTILS 46**
- U388 **LSD LEGAL UTILS 47**
- U419 **LSD LEGAL UTILS 48**
- U389 **LSD LEGAL UTILS 54**
- U390 **LSD LEGAL UTILS 55**
- U412 **LYAPUNOVIA** Picture generator
- U413 **ARESTAURE** Mends deleted files
- U414 **FAST INTRO MAKER**
- U415 **P-COMPRESS** Packer
- U416 **S-TEXT** Text packer
- U420 **A1200** WB Hacks
- U421 **KINGFISHER** Fish index to 840
- U422 **ANDYS WB3 UTILS** Brill!
- U423 **LYAPUNOV** Fractal generator
- U424 **ICON AUTHOR** iff images for icons
- U425 **AUTOSAVE** Save at intervals automatically

BUSINESS

- BU86 **JOURNAL** Accounts, simple to use
- BU96 **AMIBASE V3.76** Database
- BU104 **BANK'N** Cheque account
- BU105 **AMICASH BANKIN** Accounts
- BU106 **Q BASE & SPREADSHEET** Addresses
- BU108 **VISICALC SPREADSHEET** Like Lotus 123
- BU111 **ANALYTICALC** * (2) Spread-sheet, powerful
- BU112 **FLEXIBASE V2.0** DBase
- BU124 **BUSINESS CARD MAKER**
- BU128 **SCALC & WORDWRIGHT** Spreadsh. proc.
- BU129 **WORDWRIGHT & SPELL** Wproc and check
- BU131 **U-EDIT W/PROCESSOR**
- BU132 **TEXTPLUS W/PROCESSOR**
- BU133 **800 BUSINESS LETTERS** Just load 'em in
- BU134 **DEO TEXT EDITOR**
- BU135 **AMIGAFOX DTP V1.1** Puts pics with text
- BU136 **AMIGASPELL** Spellchecker
- BU137 **WORD FRENZY-DBASE & SPELL**
- BU138 **AMIGAFOX V1.0** W/Processor
- BU145 **TEXT ENGINE V4** W/Processor latest
- BU152 **AMIBASE PROF II V1.2** D/Base
- BU158 **MICROGNUEMACS** Text editor
- BU162 **A-Z SPELL** Spellchecker
- BU171 **ILLINOIS LABEL PRINTING**
- BU172 **INVOICE PRINTER**
- BU185 **HOME BUSINESS 1 – NAG** Diary
- BU186 **CLERK V4.0** Accounts – latest
- BU204 **MAIL-O-DEX** Mail Database
- BU212 **LABEL DESIGNER**
- BU213 **TEXTRA** Text editor
- BU231 **SPELLCHECK V1.2**
- BU248 **CHECKBOOK ACCOUNTANT** Very good
- BU251 **BUDGET V1.3-4** Finances
- BU252 **ANNOTATE**-A500+/A600 ONLY. Text editor
- BU253 **ANALYRIM** (2 Disks) ** S/Sheet + D/Base
- BU254 **SUPERSPELL** Global spell check
- BU301 **FORMS UNLIMITED** Loads
- BU304 **P SUITE V1.4**
- BU314 **P WRITER** Text editor
- BU324 **WORDPOWER** Thesaurus
- BU325 **EDWORD** W/Processor
- BU326 **ADDRESS BOOK**
- BU327 **BOILER PLATE** W/Processor & Bus. letters
- BU328 **LITTLE OFFICE** WP, S/S, D/B + Graphs
- BU329 **MORTGAGES ANALYSER**
- BU330 **PRINT A CARD** Design
- BU331 **LCD CALCULATOR**
- BU332 **AMIGA MAIL** Address lists
- BU333 **MAILBASE** Addresses & labels
- BU334 **PC FORM LETTERS**
- BU335 **PAY ADVISE ANALYSER** PAYE, NI etc
- BU336 **MONEY PROG** * Good accounts
- BU337 **CHEQUE BOOK** Accounts prog
- BU339 **D LAB** Disk labeller
- BU340 **LOGINFO** Phone bills for modem
- BU341 **EASYCALC** New spreadsheet
- BU181 **B BASE II** Database
- BU319 **ORDER v1.7** Database
- BU342 **LB LABEL** Label print
- BU343 **DATABASE WIZARD**
- BU398 **ADDRESS PRINT v3.0**
- BU399 **TEXTPLUS v4.0** Hard Drive only
- BU400 **ENVPRINT** Address envelopes

HOBBIES

- H 57 **GENEALOGY** * Family tree
- H 68 **CROSSWORD DESIGNER**
- H148 **A-GENE** Family history
- H175 **GOLF RECORDER v 1.84**
- H202 **ROAD ROUTE USA**
- H205 **DIETAID**
- H214 **FOOTBALL LEAGUE EDITOR**
- H232 **AUTOGRAPH** Petrol consumption
- H247 **CALORIE BASE** For recipes
- H250 **DARTS LEAGUE D/BASE**
- H298 **CULT TV VOL 1** TV series info
- H299 **WHOM 2** Data on TV progs.
- H302 **LAST WILL & TESTAMENT**
- H305 **ASTRO 22 v 3.0** Latest astrology
- H307 **FAMILY HISTORY D/BASE**
- H310 **TEN PIN BOWLING D/BASE**
- H333 **AMIGA PUNT** Horse racing
- H336 **PERM CHECK v1.0** Pools predicter
- H342 **STITCHERY** Cross stitch work
- H359 **RACE RATER** Horse predicter
- H360 **QUESTION ATORT** Quizmaker
- H361 **NEW BIORYTHMS** Excellent prog
- H362 **WINE MAKERS D/BASE**
- H363 **CYCLING M** Useful
- H364 **DARTS MACHINE** Score recorder
- H365 **AMYGEN** Family history
- H366 **POOLS WIZARD** Demo
- H367 **MING SHU** Chinese Astrology
- H368 **ASTRONOMY 2** Data generation & graphics
- H369 **AMERICAN FOOTBALL** (2 Disks) Game info & rules
- H370 **LANDSCAPE GARDENING**
- H371 **GENEOLOGIST**

COMMUNICATIONS

- C 25 **COMMSOFT** Needs C26
- C 26 **COMMSPANION** Needs C25
- C 62 **AZ-COMM** Modem programme
- C 71 **SUPERTEX v2.1** Videotex term Em.
- C 76 **MODEM UTILS** Access!v1.4,CNet
- C187 **VT 100** Terminal Em.
- C222 **JR COMM v1.02** For modems
- C249 **TERM II v1.1** Comms prog WB2/3
- C303 **OPTI COMMS** Inc N Comm 2
- C347 **SATELLITE TRACKER**
- C357 **AMATEUR RADIO 11** Propagation etc
- C358 **AMATEUR RADIO 2** PIC, Previews etc
- C359 **AMATEUR RADIO 3** CONNplex, Ham etc
- C360 **AMATEUR RADIO 4** Morse, Speech etc
- C361 **AMATEUR RADIO 5** Ta-term, BBS etc
- C362 **AMATEUR RADIO 6** AVT, PicLib etc
- C364 **AMATEUR RADIO 8** Master Driver
- C365 **AMATEUR RADIO 9** Morse tutor
- C366 **AMATEUR RADIO 10** Terminal 1.2
- C367 **AMATEUR RADIO 11** Satloc etc
- C368 **AMATEUR RADIO 12** Satellites
- C369 **AMATEUR RADIO 13** Ami-pack 1.51
- C370 **AMATEUR RADIO 14** Ami-pack 2.0
- C371 **AMATEUR RADIO 15** Logbook
- C372 **AMATEUR RADIO 16** Access 1.42
- C373 **AMATEUR RADIO 17** Access !
- C374 **AMATEUR RADIO 18** Radio log
- C375 **AMATEUR RADIO 19** Telecomm
- C376 **AMATEUR RADIO 20** Satellites
- C377 **AMATEUR RADIO 21** Satloc
- C378 **AMATEUR RADIO 22** Satellites
- C379 **AMATEUR RADIO 23** Comms
- C380 **AMATEUR RADIO 24** Admin LAN
- C381 **AMATEUR RADIO 25** Comms-sys
- C382 **AMATEUR RADIO 26** Domain TEXT
- C383 **N COMM v3.0** Latest
- C384 **BBBBS** (3 disks) Bulletin board system

EMULATORS

- EM 87 **SPECTRUM + 40 GAMES**
- EM139 **A64 v1.0** C64 emulator
- EM141 **IBeM** PC emulator
- EM143 **ST EMULATOR**
- EM144 **SPECTRUM**
- EM149 **C64 GAMES DISK 1** use with
- EM150 **C64 GAMES DISK 2** emulator
- EM215 **A64 EMULATOR v2.0*** (2 disks) Latest C64 emulator
- EM216 **PC TASK *** PC Emulator
- EM217 **ZX SPECTRUM EMULATOR**
- EM306 **MS-DOS PROGS FOR PC TASK** (6 Disks)
- EM324 **KICKSTART 2** 1.3 users get this!
- EM397 **NUMPAD** (A600 ONLY) Numeric keypad
- EM400 **KICK 1.3** (kickstart 2 & 3 only) Degrades to Kickstart 1.3
- EM406 **SPECCY EMULATOR v1.6** (2 Disks) Latest
- EM410 **DEGRADER** Degrades to 1.3
- EM411 **PC TASK v 2.0** Emulator (WB3 use EM400)
- EM412 **FAKEMEM** Degrades to 1.3/512k
- EM413 **KILL AGA v2** Turn off AGA chipset

PRINTER DRIVERS

- PD177 **PRINTER DRIVERS** (2 Disks) Loads of 'em!
- PD200 **PRINTER DRIVER GENERATOR** Make your own
- PD275 **JOY OF PRINTING** Drivers + fonts!
- PD281 **PRINT STUDIO** 41 drivers – good
- PD327 **CANON PRINTER DRIVERS**
- PD328 **PRINTER DRIVERS UPDATE 3**
- PD335 **PRINTER DRIVERS** Canon BJ10e
- PD354 **PRINTING UTILS v1.0** PPtype, PPshow etc
- PD358 **CANON PRINTER DRIVER** BJ130 etc
- PD407 **PRINTER DRIVERS COLL**Star/Epson/Panasonic/HP
- PD408 **HP550C Printer Driver**

COPIERS

- CP147 **PD COPY PROF v3.0**
- CP189 **D COPY v1.6** Excellent
- CP234 **FLASH COPY** Multi-tasking
- CP257 **FREE COPY v1.8** Removes protection
- CP313 **NIB v2.0** Removes protection
- CP340 **ASI CRUNCH 'N' COPY 2** Collection
- CP341 **COOL COPIER v2.0** Fast & safe
- CP348 **ASI DISK COPIERS** Collection
- CP349 **LOCK PIC 2** Remove protection on 400 games
- CP350 **D COPY v3.1**

PROGRAMMING

- PR 47 **C LANGUAGE MANUAL** (3 Disks)
- PR 49 **C LANGUAGE COMPILER**
- PR 55 **PROGRAMMING DISK 1** Language info
- PR 72 **PASCAL LANG PROG**
- PR 94 **POWER LOGO v1.0** Lisp & Logo
- PR110 **PDC** (3 Disks) Programmers aid
- PR118 **BC-FORTRAN**
- PR166 **AMIGA CODERS CLUB** (6 Disks)
- PR225 **CURSOR COMPILER** Basic language
- PR239 **DME V1.45** Programmers Text Editor
- PR243 **DICE v2.06.0** (2 Disks) C Environment
- PR244 **PCQ v1.2a** (3 Disks) Pascal compiler
- PR326 **SOZOBAN C DISK** AZ Text link compiler
- PR355 **ASM ONE** Assembly package
- PR357 **EZASM** Assemblers
- PR358 **C MANUAL** (12 Disks) The best yet!
- PR359 **NORTH 'C'** v1.3 (2 Disks)
- PR360 **LATTICE 'C' (3 disks)**

MUSIC UTILITIES

- MU182 **FUTURE COMPOSER** Sound tracker
- MU190 **OCTAMED v1.0b FF579** Music editor
- MU256 **MULTI-PLAYER V1.11A** Music
- MU315 **POWER PLAYER V2.1** Plays modules in MED
- MU316 **PLAY & RAVE V1.0** (2 Disks) Link modules together
- MU317 **DENNIS SAMPLES DISK 2** Madonna, Pepper
- MU318 **DENNIS SAMPLES DISK 3** Baby cough etc
- MU319 **DENNIS SAMPLES DISK 4** Telephone, Big Ben, Wind
- MU321 **DENNIS SAMPLES DISK 6** Mutant Turtle, Star Trek
- MU322 **DENNIS SAMPLES DISK 7** Heavy monster etc
- MU323 **ASSASSINS AUDIO MAGIC VOL 1.1** Lots – Superb!
- MU324 **ASSASSINS AUDIO MAGIC VOL 2** Trackers and Players
- MU325 **SOUND APPLICATIONS A & B** (2 Disks)
- MU326 **MEGA MON v 3.20**
- MU327 **SAMPLE MAKER**
- MU328 **CASIO CZ-101**
- MU329 **DX 100**
- MU330 **PENDLE EUROPA**
- MU331 **AUDIO ANIMATION STUDIO**
- MU332 **INSTRUMENTS & SAMPLES** Use with Sound Tracker
- MU333 **PROTRACKER v2.2**
- MU334 **NOISETRACKER v2.0**
- MU335 **SOUND TRACKER v4.0**
- MU336 **PROTRACKER v2.3** Latest
- MU337 **ASI AUDIO MAGIC Vol 3** Trackers
- MU338 **ASI AUDIO MAGIC Vol 4** Inc Pro Tracker v3
- MU2 **MODULES ONE**
- MU3 **MODULES TWO**
- MU4 **MODULES THREE**
- MU5 **MODULES FOUR**
- MU6 **MODULES FIVE**
- MU7 **MODULES SIX**
- MU10 **ST-01** – 118 samples
- MU11 **ST-02** – 134 samples
- MU12 **ST-03** – 79 samples
- MU13 **ST-04** – 90 samples
- MU14 **ST-05** – 71 samples
- MU15 **ST-06** – 104 samples
- MU16 **ST-07** – 60 samples
- MU17 **ST-08** – 48 samples
- MU18 **ST-09** – 89 samples
- MU19 **ST-10** – 66 samples
- MU20 **ST-11** – 79 samples
- MU21 **ST-12** – 96 samples
- MU22 **ST-13** – 82 samples
- MU23 **ST-14** – 94 samples
- MU24 **ST-15** – 33 samples
- MU25 **ST-16** – 79 samples
- MU26 **ST-17** – 90 samples
- MU27 **ST-18** – 80 samples
- MU28 **ST-19** – 84 samples
- MU29 **ST-20** – 92 samples
- MU30 **ST-21** – 80 samples
- MU31 **ST-22** – 46 samples
- MU32 **ST-23** – 14 samples
- MU33 **ST-24** – 26 samples
- MU34 **ST-25** – 41 samples
- MU35 **ST-26** – 150 samples
- MU36 **ST-27** – 110 samples
- MU37 **ST-28** – 93 samples
- MU38 **ST-29** – 48 samples
- MU39 **ST-30** – 80 samples
- MU40 **ST-87** – samples
- MU41 **ST-89** – samples
- MU42 **ST-90** – samples
- MU43 **ST-92** – samples
- MU44 **ST-93** – samples
- MU45 **ST-94** – samples
- MU46 **ST-97** – samples
- MU47 **ST-98** – samples
- MU339 **OCTAMED V2.0** 8 channel MED sequencer
- MU340 **CDTV PLAYER** Simplifies audio CD's
- MU341 **SUPERSOUND v2.1** Sound sampling with all effects
- MU342 **SOUND** Sample player
- MU343 **DESKTOP GUIDE TO ELECTRONIC MUSIC** (3 disks)
- MU344 **TAB MASTER** Music to guitar translator
- MU345 **POWERCUTS** Good sound effect samples

GRAPHICS

- GU163 **3D FONTS** (3 Disks)
- GU168 **CARTOON BRUSHES**
- GU219 **TV GRAPHICS** (2 Disks)
- GU226 **GRAPHIC UTILS**
- GU227 **REAL 3D FONTS**
- GU228 **REALTIMES** (2 Disks) 3D Pics
- GU240 **RICK PARKS ART**
- GU245 **BOOTPIC V1.2**
- GU246 **CLIP-ART PORTFOLIO** (15 disks)
- GU261 **LARGE FONTS DISK**
- GU265 **SCANNES CLIP-ART** (3 Disks)
- GU266 **PG CLIP-ART**
- GU268 **EXILE FONTS**
- GU269 **DYNAMITE FONTS**
- GU270 **FONTS & SURFACES**
- GU272 **CLIP-ART COLL** (8 Disks)
- GU273 **CLIP-ART VOL 1** (7 Disks)
- GU274 **FONTLIB**
- GU276 **SOMETHING FOR NOTHING 1**
- GU277 **SOMETHING FOR NOTHING 2**
- GU279 **DYNAMITE FONTS 2**
- GU280 **HACK FONTS 1** (2 Disks)
- GU283 **COSMOPOLITAN FONTS 1**
- GU284 **COSMOPOLITAN FONTS 2**
- GU285 **COSMOPOLITAN FONTS 3**
- GU286 **COSMOPOLITAN FONTS 4**
- GU289 **SONIC DEV CONVERTERS PACK**
- GU290 **BEATRIX POTTER CLIP-ART**
- GU300 **GELIGNITE FONTS**
- GU309 **RAY DANCE** (2 Disks)
- GU310 **T.S.P. PICTURE FONTS**
- GU311 **DISK MANAGER + FONTS** (Plus only)
- GU312 **SHADOW MAKER**
- GU313 **MOVIE MAKER**
- GU314 **ANIMATIONS BRIDGE V1.0**
- GU315 **PLOTTING & GRAPHICS**
- GU316 **DOCK ICONS**
- GU317 **ASSASSINS MULTI-VISION V1.0**
- GU318 **THE SNOWMAN CLIP-ART**
- GU319 **PAGESTREAM 2.1 FONTS** (Disks)
- GU320 **WALT DISNEY CLIP-ART**
- GU321 **MAGNETIC PAGES V1.3**
- GU322 **COMPUTEREYES FONTS PACK 1**
- GU323 **COMPUTEREYES FONTS PACK 2**
- GU324 **COLOURED ICONS**
- GU325 **GRAPHICS RIPPER**
- GU362 **DIRECT ACTION** Anim creator
- GU363 **M.A.K.** Mandelbrot adv kit
- GU402 **FREE PAINT** Copy of DPaint
- GU403 **VIEWTEC v1.02** AGA graphics display
- GU404 **FONTS DISK 1** Large & small
- GU405 **DIGI FONTS** Good variety
- GU406 **COLOUR FONTS 1** Modern, Olde, Pica
- GU407 **COLOUR FONTS 2** Marble, Rocks, Grids
- GU408 **COLOUR FONTS 3** Dimond, Eye, Sun
- GU409 **COLOUR FONTS 4** Digi/Font brushes
- GU410 **COLOUR FONTS 5** Cinnam 8, 16 etc
- GU411 **COLOUR CLIP-ART** Hi/Med/Low for DTP
- GU412 **COLOUR CLIP-ART** Animals
- GU413 **CLIP-ART** Animals B&W IFF
- GU414 **CONTACH CLIP-ART 1** Cartoon, Zodiac, Cartoon
- GU415 **CONTACH CLIP-ART 2** Buildings, Xmas, Transport
- GU416 **CONTACH CLIP-ART 3** Signs, Teddys, Work
- GU346 **VIEW 3.2** Anim Player
- GU347 **HAM LAB PRO V2.08** Picture converter
- GU417 **GRAPHICS TOOLS 2**
- GU418 **RAYSHADE** (3 Disks)
- GU419 **PRO PAGE TEMPLATES**
- GU420 **PRO PAGE HELP**
- GU421 **DPAINT TUTOR** Learn to use it
- GU422 **SPECTRA PAINT**
- GU423 **THE DESIGNER** Arcade backgrounds
- GU424 **RJ UTILS** Perfect Paint, Image W/Shop
- GU425 **FONT FARM 3**

EDUCATION

- E1 **EDUCATION DISK 1** German tutor etc
- E2 **EDUCATION DISK 2** Geography etc
- E3 **EDUCATION DISK 3** Nature, bugs etc
- E4 **EDUCATION DISK 4** Weather etc
- E5 **EDUCATION DISK 5** Calendar etc
- E6 **LEARN & PLAY** (2 disks) Early learning
- E7 **WORD GAME VOL 1**
- E8 **WORD GAME VOL 2**
- E9 **MATHS DRILL**
- E10 **TYPING TUTOR**
- E11 **KIDSPAINT** Colouring book
- E12 **SIMON'S COLOURS & SPACE MATHS**
- E13 **STORYLAND 2** Save toyland
- E14 **TC ASTRONOMY** Book on a disk
- E15 **TC DINOSAURS** Learn about them
- E16 **PAIR IT** Learn about shapes
- E17 **SPELLCHECK** Learn foreign words
- E18 **TRANSLATOR** Spanish, French, Italian
- E19 **COLOUR IT V1.3** For younger kids
- E23 **COLOUR THE ALPHABET** Very good
- E24 **DTP – FOR KIDS** Excellent
- E25 **ALGEBRA**
- E26 **MATHS WIZARD** Let the Wizard help
- E27 **AMOSAGRAM** Playing with words
- E28 **BLACKBOARD MATHS**
- E29 **KING JAMES BIBLE** (4 disks)
- E30 **MR MEN STORIES** All your favourites
- E31 **READY ROBOT** Full of games
- E32 **SCIENCE 3** – Physics
- E203 **MULTIPLOT vXLNE** (2 Disks) Data plotting prog
- E258 **MATHPLOT** Lin/log plotter
- E259 **PLOTTER v3.90** 2 dim math plots
- E311 **AMIGA TUTORIAL** Beginners will like this
- E322 **AGRAPH** Pie charts & others
- E334 **SACC TO SCHOOL** Kids puzzles, very good
- E335 **FIREWORK ALPHABET** Learning aid demo
- E336 **GRAMMAR** Correct your errors
- E337 **WORLD GEOGRAPHY** Very useful
- E338 **CHEMBALANCE** Chemical equations
- E339 **MATCH WITH HUMPTY**
- E340 **AMIGA WORLD** Info on every country on Earth
- E341 **SINGALONG NURSERY RHYMES**
- E342 **PICTURES & LETTERS**

CLASSICS

BOOKS ON A DISK
Helps with your English Literature revision!!
All disks run on A500/A500+/A600/A1200

Shakespeare Collection:

- CL 1 MIDSUMMER NIGHTS DREAM; MACBETH; JULIUS CAESER; ANTHONY & CLEOPATRA.
- CL 2 AS YOU LIKE IT; LOVERS COMPLAINT; CYMBELINE; HAMLET.
- CL 3 ROMEO & JULIET; PASSIONATE PILGRIM; PHEONIX & TURTLE; SONNETS; CORIOLANUS.
- CL 4 TWELTH NIGHT; VENUS & ADONIS; TROILUS & CRESSIDA; LOVES LABOUR LOST.
- CL 5 TWO GENTLEMEN OF VERONA; A WINTERS TALE; RAPE OF LUCRECE; PERECLES.
- CL 6 OTHELLO; MUCH A DO ABOUT NOTHING; MEASURE FOR MEASURE.
- CL 7 HENRY VI PARTS 1,2 & 3.
- CL 8 HENRY IV PARTS 1 & 2; HENRY V.
- CL 9 RICHARD II; RICHARD III.
- CL10 HENRY VIII; KING JOHN; KING LEAR.
- CL11 THE TAMING OF THE SHREW; THE TEMPEST; TIMON OF ATHENS; TITUS ANDRONICUS.
- CL12 ALLS WELL; COMEDY OF ERRORS; MERCHANT OF VENICE; MERRY WIVES OF WINDSOR.
- CL13 WORKS OF MILTON 1; PARADISE LOST (2 disks)
- CL14 WORKS OF MILTON 2; POEMS SONNETS ETC.
- CL15 WORKS OF HOMER – THE ILLIAD(2 disks).
- CL16 WORKS OF HOMER – THE ODYSSEY.
- CL17 MARK TWAIN – TOM SAWYER.
- CL18 MARK TWAIN – THE PRINCE & THE PAUPER.
- CL19 LEWIS CARROLL – ALICE IN WONDERLAND; ALICE THROUGH THE LOOKING GLASS.

SUPERB QUALITY CLIPART

- GU026 **ART ONE** (2 Disks) Weddings
- GU027 **ART TWO** (2 Disks) Houses
- GU028 **ART THREE** (3 Disks) Religious
- GU029 **ART FOUR** WWII Aircraft
- GU030 **ART FIVE** (2 Disks) Men
- GU031 **ART SIX** (2 Disks) Women
- GU032 **ART SEVEN** (2 Disks) Kids
- GU033 **ART EIGHT** Business
- GU034 **ART NINE** Office
- GU035 **ART TEN** Students
- GU036 **ART ELEVEN** Sale
- GU037 **ART TWELVE** (3 Disks) Christmas
- GU038 **ART THIRTEEN** (3 Disks) Punch
- GU039 **ART FOURTEEN** Animals
- GU040 **ART FIFTEEN** Cats
- GU041 **ART SIXTEEN** Silhouettes
- GU042 **ART SEVENTEEN** (2 Disks) Schools
- GU043 **ART EIGHTEEN** Babies
- GU044 **ART NINETEEN** (2 Disks) Sport
- GU045 **ART TWENTY** Olympic
- GU046 **ART TWENTY ONE** (2 Disks) Medical
- GU047 **ART TWENTY TWO** Sea Life
- GU048 **ART TWENTY THREE** Decorative Months
- GU049 **ART TWENTY FOUR** Wacky (funny)
- GU050 **ART TWENTY FIVE** Holidays
- GU051 **ART TWENTY SIX** (2 Disks) Old banners
- GU052 **ART TWENTY SEVEN** Art Nouveau flowers
- GU053 **ART TWENTY EIGHT** Butterflies
- GU054 **ART TWENTY NINE** (2 Disks) Food & kitchen
- GU055 **ART THIRTY** Colouring book (DPaint)
- GU056 **ART THIRTY ONE** Borders (DTP)
- GU057 **ART THIRTY TWO** (2 Disks) MAC clipart
- GU058 **ART THIRTY THREE** Hornback (comic)
- GU059 **ART THIRTY FOUR** (2 Disks) Teddy Bears
- GU060 **ART THIRTY FIVE** (2 Disks) Vanity Fair (fashion)
- GU061 **ART THIRTY SIX** Halloween (weird)
- GU064 **ART THIRTY SEVEN** Showtime (dancing etc)
- GU065 **ART THIRTY EIGHT** Vegetarian
- GU066 **ART THIRTY NINE** Floral (detailed)
- GU067 **ART FORTY** Myths & Zodiac

VIDEO WORK

- V 99 **CATALOGUE WORKSHOP 1**
- V100 **CATALOGUE WORKSHOP 2**
- V179 **VIDEO APPLICATION UTILS**
- V180 **VIDI FONTS 1**
- V220 **VIDEO GRAPHICS** (4 Disks)
- V236 **CHEMNIMATE** Reaction anims
- V345 **VIDEO WIPES**
- V401 **INSCRIPT** Video titler
- V402 **TELE TITLE 2** Video titler

VIRUS HELP

- VH 44 **MASTER VIRUS KILLERS v2.0**
- VH 93 **WARRIORS VIRUS KILLERS**
- VH218 **NEW SUPERKILLERS v2.0**
- VH235 **BOOTX v3.0ED**
- VH312 **LINK VIRUS DETECTOR**
- VH344 **VIRUS CHECKER v6.15**
- VH409 **EXTERMIN 8**
- VH410 **A1200 VIRUS KILLERS**
- VH411 **VIRUS Z** – Latest

A1200 A4000 ONLY

5 EXCITING NEW DISKS FOR A1200/A4000 ONLY
WEIRDSCIENCE 1-5 (5 Disks)
Slideshow + Music

NEW SUPER HAM PICS! FOR A1200/A4000 ONLY SH 1-6 (6 Disks)
Superb quality pictures

HARD DRIVE UTILS

- HD102 **HARD DISK UTILS** Excellent collection
- HD223 **DELTRAX HARD DRIVE UTILS 1** Flexidisk HDClick
- HD395 **RE ORG V2.3** Optimiser
- HD396 **HD PREP** Preps A1200 hard drive

DEMOS

- D 32 **BUDBRAIN MEGADEMO 2**
- D 57 **NEWTEK DEMO REEL 3** (2 disks)
- D110 **BUDBRAIN MEGADEMO 3**
- D143 **END OF THE CENTURY 1999** NO BRAIN-NO PAIN
- M159 **PINK FLOYD - THE WALL** (6 disks)
- M163 **SANITY - YESTERDAY** Brill!
- D201 **CRIONICS MEGADEMO**
- D207 **KEFRENS MEGA DEMO VIII** (2 disks)
- D301 **GULF WAR CONFLICT** ***
- D303 **THE DATING GAME** *** (3 disks)
- D304 **UTOPIA TOTAL CONFUSION**
- D305 **ODYSSEY** (5 disks)
- D306 **ANARCHY-SEEING IS BELIEVING**
- D307 **CRIONICS HARDWIRED** (2 disks)
- D308 **RAZOR 1911 VOYAGE**
- D310 **WACKO METAPHORPH ANIM** *
- D311 **ROBOCOP/RUNNING MAN ANIM** *
- D312 **KEFRENS DESERT DREAM 1993** (2 disks)
- D313 **JESUS ON E'S** (2 disks) 20 mins WOW!
- D314 **A1200 INTROS**
- D315 **HOY AGA DEMO**
- D316 **BAIT MASKING** New 2 meg Schwartz anim
- D317 **TECHNOLOGICAL DEATH** Like space balls Mega!
- D318 **SPACE BALLS** Brill!
- D319 **TEKNO-A-TAK MEGA RAVE**
- D320 **HOY AGA DEMO 2**
- D321 **TROJAN TECKNO TRACKS**

NO FRILLS – NO GIMMICKS – JUST GREAT PD – WYSIWYG!!

GAMES

- G2 **WASTELANDS** Adventure
- G4 **MEGABALL** Breakout – very addictive
- G5 **STAR TREK I** (2 disks) Space
- G11 **MORIA** * Dungeon & Dragon Adventure
- G12 **COLOSSAL WORLD** Adventure
- G13 **CASTLE OF DOOM** Adventure
- G14 **HOLY GRAIL** Text only adventure
- G15 **GOLDEN FLEECE** Text only adventure
- G18 **LARN**
- G22 **CARD GAMES** Harp, Plat, Queens etc
- G23 **SUPER TWINTRIS** Shape dropping excellent
- G24 **ROLLERPEDE** Space centipede, a must
- G26 **SPACEBLITZ** Invaders etc
- G29 **GAMES DISK 7** Backgammon etc
- G33 **WIZZYS QUEST** * Arcade puzzle, good graphix
- G34 **RETURN TO EARTH** Elite type, space adventure
- G35 **LLAMATRON** 512K & 1Mb Shoot 'em up
- G38 **DRIP** * Arcade type, avoid the nasties!
- G39 **BUG BASH** Shoot 'em up
- G40 **ASTEROIDS** Arcade classic
- G41 **ESCAPE FROM JOVI** Space Arcade
- G43 **DOWNHILL CHALLENGE** Tactics, ski to win
- G44 **BATTLEFORCE** Fantasy roll playing game
- G45 **DRAGON CAVE** Dungeon Master type
- G48 **MAYHEM** Space Adventure – good
- G49 **MECHFIGHT RPG** Roll playing game
- G50 **THE TENNIS GAME** * (F ONLY) Arcade
- G51 **BUCK ROGERS** (PD GAME) Space shoot 'em up
- G52 **GREYSLAYER** Arcade adventure
- G53 **SCUM EATERS** Shoot 'em up
- G54 **STAR TREK 2** * (3) Arcade adventure
- G55 **POM POM GUNNER** * Arcade shoot 'em up
- G56 **FRUIT MACHINE** * Excellent
- G57 **MECHFORCE** (2 Disks) RPG
- G58 **SEA LANCE** * Submarine Simulation
- G59 **KLONDIKE** Cards
- G60 **TREK TRIVIA** Quiz for Trekkies
- G61 **SURVIVOR** Space adventure
- G62 **AIR ACE II** World War 2 S.E.U.
- G63 **COMP ADV SOLUTIONS DISK 1**
- G64 **COMP ADV SOLUTIONS DISK 2**
- G65 **MERV THE MERCILESS** Platform, good graphix
- G66 **SNAKEPIT** Make the snake grow! For the kids
- G67 **TREASURE HUNT** (6-8 yrs) Help Long John Silver
- G68 **CHEAT LIST GAMES V1.0**
- G69 **WACKO JNR IN WONDERLAND** Kids will love this
- G70 **PARACHUTE JOUST** Good graphics
- G71 **CRYSTAL CAVERNS** Arcade adv, spells & combat
- G72 **TREK-73** Space text adv
- G73 **ZEUS – THE GAME** Puzz tiles
- G74 **DUNGEON DELVER** (2 Disks) Mazes
- G75 **PICK UP A PUZZLE** * (2 Disks) Jigsaws
- G76 **CHAINSAW DEATH** * Futuristic maze type
- G77 **CAN YOU PICTURE IT** * (2 Disks) Jigsaw
- G78 **CROSSFIRE** * Excellent for kids
- G79 **BALLOONACY** * Bomb the skyscrapers
- G80 **WOODEN BALL** Marble type
- G81 **DEMOLISION MISSION** * Bomber
- G82 **BLACKJACK** Card game
- G83 **HYPERBALL** Marble type
- G84 **PETER'S QUEST** Arcade –Rescue the Maiden
- G85 **KIDS PAINT** Colouring book
- G86 **YELP** Kids enjoy this one
- G87 **TURRICAN II DEMO**
- G88 **AMIGAMAN GAMES** 10 games
- G89 **BIOMIXS CHALLENGE II** Good
- G90 **SHAPES** Very playable for kids
- G91 **GO LOOLY** S.E.U. Good graphix
- G92 **STAR TREK THE NEXT GENERATION**
- G93 **BLOCKIT** Good graphix – Ace
- G94 **HACK** Text adv
- G95 **DRAGON TILES** Great tiles game
- G96 **BOARD GAMES**
- G97 **ATIK ATAK** C64 game
- G98 **AVALANCHE** Catch the balls
- G99 **BART SIMPSON** Scrolling S.E.U.
- G124 **PIPE RIDER** Space invader S.E.U.
- G125 **RAMIFY** Pairing
- G126 **RUSH HOUR** Frogger – Get across the road
- G127 **TOMTESPELET** Speed ball type
- G129 **WET BEAVER GAMES** Pong
- G130 **WIZARD WORLD** S.E.U. Platform
- G131 **WORLD OF FOOLS** S.E.U. collection – Excellent
- G133 **CARD SHARP** 5 card games
- G134 **TOTAL WAR** Risk type
- G135 **AIRMANIA** Platform
- G136 **SKYFLYER** WWII S.E.U.
- G137 **PUGGLES** Q bert brill
- G138 **SQUATS REVENGE** Wolf clone
- G139 **PAIR IT** Shapes
- G140 **GAMES COMPILATION** I 6 games
- G141 **ATLANTIS** I Strategy
- G142 **NAPOLEONIC WAR SIMULATION** Strategy
- G143 **MISSION RAID PART II** S.E.U.
- G144 **SNAKES & LADDERS** Good
- G145 **GAMES GALORE VOL 7** For the young
- G146 **AIR WARRIOR** Flight simulation
- G147 **CAR**
- G150 **NETHACK** (2 Disks) D+D Adv
- G151 **E-TYPE** Arcade S.E.U.
- G152 **DUNGEONS OF NADROJ** Hacktype
- G153 **QUICK & SILVER** Platform. Excellent
- G154 **MASTER OF THE TOWN** Shoot the sign posts
- G155 **BRAINBALL** Pinball type
- G156 **ETHOS** Text adv + pics
- G157 **BATTLE CARS** 3D cars S.E.U.
- G158 **CHALLENGER** Quiz - 5 player
- G182 **CATACOMB** Graphic adv – very well done
- G183 **KINGDOM AT WAR** War games
- G184 **SMASH TV RIPOFF** S.E.U. Futuristic
- G185 **DOODY** Mario type platform
- G186 **PICK OUT** Pair it. V. good
- G187 **NU-SHOOT EM UP** Space
- G188 **SOLID QUAD** * Racing – Fab!
- G189 **STRIKE BALL** Baseball. Brill!
- G190 **PARAGON** Marble Slide
- G192 **CRAZY SUE** Platform, 1st rate
- G193 **HENRY IN PANIC** Manic Miner – very addictive
- G194 **CONCENTRATION V3.3** Pair it – amazing graphix
- G195 **DESTINATION MOONBASE** Thrust
- G196 **ESCAPE FROM JOVI III** Caves
- G197 **NO MANS LAND** War S.E.U.
- G198 **DOMINOES** V. Good
- G199 **RAPHAELS REVENGE** Turtle S.E.U.
- G200 **MIDNIGHT THIEF GAME** Adv
- G201 **LAMER GAME** Wolftype shoot the beasties
- G202 **LETTRIX** Shapes with time limit
- G204 **GRUB GRABBER II** Help Elvin! Avoid gremlin
- G205 **SWORD OF WORLOCK** 3 disk Adv
- G206 **A NIGHT AT THE TOP** Terrorist adv
- G207 **NIGHT AT THE TOWN** Text adv
- G208 **QUADRIX** Puzz. Excellent
- G209 **YUM YUM** * Pacman
- G210 **REVENGE MUTANT CAMELS** S.E.U.
- G211 **BATTLEMENTS** Hunchback platform
- G212 **LEMMINGOIDS** Blast them!
- G217 **WEIRD IN EDGEWAYS** Puzzle
- G218 **KARATE WORM** Platform-cute
- G219 **SNAKE IN THE GRASS** Platform – neat
- G220 **WAR OF THE FOUR** Graphic adv
- G221 **WIZARDS DOMAIN** Graphic adv
- G222 **PIXIE KINGDOM** (2)
- G223 **ARCADIA** Breakout – very popular
- G224 **PORK A PORK** Pop the balloons – stop the foxes
- G225 **MR BRICK** - Mario type
- G226 **RAID III** S.E.U. – wicked
- G227 **SERENE III**
- G228 **WOTSITSNAME** Quiz
- G229 **TETREN** – tetris
- G230 **HUMPTY & THE ALIEN INVADERS** Manic Miner
- G232 **LOTHIAN** Graphic adv
- G233 **OMEGA RACE** S.E.U. Great
- G234 **MENTAL IMAGES DISK 2** 3 games
- G262 **MR & MRS** Young platform – very good
- G263 **TANX** Great 98%
- G264 **DEFENDA** Arcade 95% Brilliant conversion
- G265 **GRAND PRIX SIMULATOR** Mega
- G266 **NUMBER FUMBLER** Number puzzle
- G267 **LEMMINGOIDS** Blast away
- G268 **GROWTH**
- G269 **SKATE**
- G270 **PROJECT 1**
- G271 **LAZER ZONE**
- G272 **LEMMINGS PACK**
- G273 **THE MAZE GAME**
- G274 **SUBCULTURE**
- G275 **APIDYA**
- G276 **SHOOT OUT**
- G277 **SUPER SKODA CHALLENGE**
- G278 **COMPUTER CONFLICT 2**
- G279 **ANTEP & SLOT CARS GAME** RPG
- G280 **TRICKY & THE TURN GAME**
- G283 **CARD GAMES 2**
- G285 **MIND GAMES 21**
- G286 **HYPER TEXT CHEATS**
- G287 **TECHNOBAN** Puzzle game
- G288 **LORD OF HOSTS**
- G289 **THE BEAST** Mission to kill
- G290 **NADILOT RUN** Cat & dog chase
- G291 **OUCH** Clobber those moles
- G292 **ABSOLUTE ADV VOL ONE**
- G293 **CHAOS STRIKES BACK** Maps etc.
- G294 **GAME TAMER V3.0**
- G302 **AMOS CRICKET** Good cricket game
- G303 **ARAZNAX** 40 levels
- G304 **HELL ZONE** Elite
- G305 **FATAL MISSION** Good shoot 'em up
- G306 **GHOSTSHIP**
- G307 **CROSSMAZE/CRYPTO KING** Words
- G308 **INTERLOCK (AMOS)** 25 levels
- G309 **TANK ATTACK & MOUTHMAN**
- G311 **THRALLBOUND** Viking Adv Text
- G312 **BOUNCE AND BLAST** Platform
- G313 **SOCCER CARDS** Run the club
- G314 **CYBERNETIX** Fast action
- G315 **STAR MIX 2** 3 games
- G316 **FLAG CATCHER** Squares puzz
- G317 **OMEGA** Adv Moria type
- G318 **TOP SECRET** Excellent graphics platform
- G319 **MADONNA** Jigsaw
- G320 **ROBOCOP GOES TO IRAQ** seu
- G321 **BACK TO THE FUTURE III** Funny
- G322 **45 CHEATS** Codes etc
- G323 **TOMCAT** F15 shoot 'em up
- G324 **SUPER QUIZ**
- G325 **POWER PONG** Boing
- G326 **MAHJONG** Tiles
- G327 **NESTER** Cards
- G328 **STARFLEET** Shoot 'em up
- G329 **EXCALIBER** Shoot 'em up
- G330 **IMPERIUM ROMANIUM** Battle
- G331 **SQUAMBLE** Very Spacey!!
- G332 **JETMAN** Good shoot em up
- G333 **MECHFORCE v 3.71** Latest update
- G334 **PROPERTY MARKET GAME** Strategy
- G335 **ROLL ON & LAMER** Pushing
- G336 **HACKLITE v 1.0** Moria & Hack
- G337 **HELLATIANS** S.E.U. game
- G338 **DIE FILTH** (2) Brill like Swiv
- G339 **ULTIMATE HINT KIT v1.0**
- G340 **THE ACE CHEATS DISK 2** Lots
- G341 **BATTLE OF BRITAIN** Strategy
- G342 **THE SECRET OF MONKEY ISLAND** A must
- G343 **WAGGLE-AWAY** Help with games
- G344 **ESCAPE II** Creating games
- G345 **QUIZMASTER v 1.0** Test your knowledge
- G346 **NEBULA** Shoot-em-up fast action!
- G347 **ESCAPE** Into space!
- G348 **RUMMY** Excellent card game
- G349 **SPACE RESCUE** Super shoot 'em up
- G350 **INVADERS MARK II** Space invaders
- G371 **ERIC THE WARRIOR** Sim to Gauntlet
- G372 **KLAKTRIS** Tris type game
- G373 **CLI-TRIS** Latest TRIS
- G374 **DELUXE PACMAN**
- G375 **GALAGA 92** Shoot-em-up
- G376 **LIBERATOR GAME** Shoot-em-up
- G377 **ACK-ACK**
- G378 **CRAZY SUE 2** Latest platform
- G380 **LAST REFUGE** Invaders
- G381 **ZINGGER GAME** Karate game
- G382 **UCHESS** (AGA – A1200/A4000 ONLY) Chess game (req 4Mb RAM)
- G383 **THE NIRVANA GAME** Platform speccy type
- G385 **MORIA v5.4** Latest
- G386 **FRUIT MACHINE II** AMOS good
- G387 **OBLIVION** Defenda clone
- G388 **BOMB JACKY** Platform
- G390 **OTHELLO** Board game classic
- G391 **SOLITAIRE SAMPLER** Cards
- G392 **WILLY IN THE CASTLE** Excellent platform
- G393 **FRUIT SALAD** Platform. Reviewed in Format
- G394 **MARIO IN WONDERLAND** Brill clone – Mega!
- G395 **AGA TETRIS A1200** Magic!
- G396 **GIDDY** Great new platform game
- G397 **ZALYCON** (2 disks) Shoot 'em up
- G398 **ATOMS** Weird!
- G399 **VECTA STORM** Brill new Tempest clone
- G400 **DIGITAL TETRIS**
- G401 **A1200 TETRIS**
- G402 **TETRIS PRO**
- G403 **SUPER PACMAN 92**
- G404 **BRIDGE**
- G405 **18th HOLE GOLF** (2 disks)
- G406 **SLIDE SQUARES** Puzzle
- G407 **THEY CAME FROM OUTER SPACE** Shoot em up
- G408 **SON OF BLAGGER** Excellent platform
- G409 **BRAINBOW** Addictive puzzle
- G410 **MYSTERY 2144 AD** Futuristic Murder adv.
- G411 **GUSH** Fab pipeline clone
- G412 **MEXICAN MASSACRE** Arcade action
- G413 **100 MEGA GAMES** (7 disks)
- G414 **BOX** Adventure game
- G415 **SLAMBALL** Future Management sim.
- G416 **MAYHEM2** Multi player manic maze
- G417 **MUGSIE** Money making gangster adventure
- G418 **ROULETTE + PUNTO 2** Good game (not 1.3)
- G419 **BLITZ GAMES** Worm, buzzbar, speed etc.
- G420 **SKID MARKS** Amazing driving game
- G421 **ZOMBIE, APPOCOLIPS AND DEFENDER 2** Brill!
- G422 **BILLY BURGLAR** Just try to escape.
- G423 **OLYMPIAD** (Lemmings) 2 Disks
- G424 **CAVE FLIGHT** Dodge the obstacles.
- G425 **SERIOUS BACKGAMMON**
- G426 **AIRPORT**

BOULDERDASH

Most titles now work on A500/A500+/A600/A1200/A4000

- BD 1 - FLASCHBIER I
- BD 2 - FLASCHBIER II
- BD 3 - BOULDERDASH COLLECTION I
- BD 4 - BOULDERDASH COLLECTION II
- BD 5 - BOULDERDASH COLLECTION III
- BD 6 - BOULDERDASH COMPILATION 1/2/3/4/+ Construction Kit
- BD 7 - EMERALD EAT MINE
- BD 8 - EMERALD MINE TOOLS EDITOR v 4 (2 disks)
- BD 9 - EMERALD MINES CAVE EDITOR
- BD 10 - EMERALD PRO
- BD 11 - EMERALD PRO 3
- BD 12 - EMERALD PRO 4
- BD 13 - EMERALD PRO 4 EXTRA
- BD 14 - LAZERS EMERALD MINE 2
- BD 15 - EMERALD MINES TUTORIAL - 2nd Part
- BD 16 - EMERALD MINES 2
- BD 17 - EMERALD MINES 3
- BD 18 - EMERALD MINES 4
- BD 19 - EMERALD MINES 10
- BD 20 - EMERALD MINES 11
- BD 21 - EMERALD MINES 12
- BD 22 - EMERALD MINES 13
- BD 23 - EMERALD MINES 14
- BD 24 - EMERALD MINES 15
- BD 25 - EMERALD MINES 18
- BD 26 - SUPER EMERALD MINE
- BD 27 - EMERALD RUNNER MINE 1
- BD 28 - EMERALD RUNNER MINE 2
- BD 29 - EMERALD EATER
- BD 30 - THE NEW EMERALD MINES
- BD 31 - RECYCLED EMERALD MINES 1
- BD 32 - RECYCLED EMERALD MINES 2
- BD 33 - EMERALD HEAD
- BD 34 - DANMARK II
- BD 35 - MARATHON MINES 1
- BD 36 - MARATHON MINES 2
- BD 37 - MARATHON MINES 3
- BD 38 - BOND MINES 1
- BD 39 - BOND MINES 6
- BD 40 - RUPPLE MINES
- BD 41 - EASY RUPPLE MINES
- BD 42 - RUPPLE MINES EDITOR
- BD 43 - WATER MINES
- BD 44 - ADVENTURES OF MR B - Part 2
- BD 45 - EAT MINES 1
- BD 46 - EAT MINES 2
- BD 47 - EAT MINES 3
- BD 48 - EAT MINES 10
- BD 49 - NO ONE MINES 1
- BD 50 - NO ONE MINES 2
- BD 51 - NO ONE MINES 3
- BD 52 - NO ONE MINES 5
- BD 53 - NO ONE MINES 6
- BD 54 - NO ONE MINES 7
- BD 55 - NO ONE MINES 8
- BD 56 - NO ONE MINES 9
- BD 57 - NO ONE MINES 10
- BD 58 - SPUD MINES 3
- BD 59 - ENEMY MINES
- BD 60 - BOBBYDASH
- BD 61 - DENMINE 1
- BD 62 - LADYBIRD MINE - KIDS
- BD 63 - INTO THE FUTURE FIELDS
- BD 64 - INTO THE FRUSTY FIELDS
- BD 65 - INTO THE COLD CAVES
- BD 66 - LABAN MINE
- BD 67 - FUN MINE 1
- BD 68 - ACE MINE 1
- BD 69 - SUPER AMIDASH
- BD 70 - ROCKNUTS 1
- BD 71 - ROCKNUTS 2
- BD 72 - BOULDERDASH C64
- BD 73 - PROFESSIONAL BOULDERDASH 1
- BD 74 - PROFESSIONAL BOULDERDASH 2
- BD 75 - FIRST CLASS BOULDERDASH
- BD 76 - BOULDERDASH CONSTRUCTION KIT
- BD 77 - OFFICIAL BOULDERDASH
- BD 78 - MEGA BOULDERDASH
- BD 79 - STONEAGE
- BD 79A- STONEAGE (PLUS COMPATIBLE)
- BD 80 - LITTLE BOULDER
- BD 81 - BOULDERS GROVE/B G EDITOR (ASI 50)
- BD 82 - CAVE RUNNER

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Any 50 = £47.50
Or Singly at PD Prices

ASSASSINS

Now most work on A500+, A600 & A1200 all New collection!!

- ASI 1a FIX DISK (for older games)
- ASI 1 Tans, Rollerpede, Avatris, Amigoids etc.
- ASI 2 Invaders, Bally 2, Missile Command etc.
- ASI 3 Megaball & Drip Superb gamepack
- ASI 4 Frogger Go Moku, Cracker Jumpy etc.
- ASI 5 Raid, Go Looly & Retaliator.
- ASI 6 Pacman, Downhillchallenge, Weltrix etc.
- ASI 7 Moonbase, Trix, Nightworks, Clawbrummer
- ASI 8 Aracol2, Hball, Snakepit & Numberfumbler
- ASI 9 Features Bottle pong & Blizzard.
- ASI 10 Escape, Pipeline, Pickpat & Syn.
- ASI 11 Dial, Cosmox, Reversi Towers & Trippin.
- ASI 12 Llamatron, Car, Powerpong XTI Fab.
- ASI 13 Twintris, Squamble, Block it, Ball etc.
- ASI 14 China Challenge 2 & Amiga Columns
- ASI 15 Battlecars Lettrix & Mombamovel
- ASI 16 Wastelands, Mission X, Defenda, Pacman
- ASI 17 Tomcat, Defenda, Jetman Bugblaster
- ASI 18 Henry in Panic Skyflyer Omega race
- ASI 19 Growth, FrantoFreddy, Biplane & more NOTGOD
- ASI 20 Microbes Hollywood trivia Coin drop
- ASI 21 Zeus Tetris Battlements & Dragonflies.
- ASI 22 Lemmingoids, Wizzys quest Duel Mouthman.
- ASI 23 Quick money, BIP, Interferon Arcadia
- ASI 24 Revenge of camels Dux Crisis 3Dmaze etc.
- ASI 25 Mr Brick, Copper, Hemoroids, E-Type.
- ASI 26 Superpacman 92 Smash TV Astrodo System 4 etc.
- ASI 27 Addictive card games. Really good.
- ASI 28 Doody, Dr Mario, Invaders 2, Mathsmber2.
- ASI 29 DOG, Rome, Nova, B-Bal, Klax, Quadrix
- ASI 30 Bounce & Blast, Total Fire Tank Attack
- ASI 31 Araznax, Crazy pipe, revolution etc.
- ASI 32 Blob, Sector one & Firefighter
- ASI 33 Hyperball & War! 2 good games.
- ASI 34 Trailblazer, Yelp, Obic Rushcar
- ASI 35 Poing, Snakepit, Cybernetix Jump n roll.
- ASI 36 Mother kids, Wonderland, Kong Tactix
- ASI 37 Klaktris, Ghostship, Paccer etc.
- ASI 38 One on One, Baldy, Skyflyer2 Transplant
- ASI 39 Lots of card games on this disk.
- ASI 40 Disk full of sliding puzzle games.
- ASI 41 Pacman deluxe, Hellzone Loop II etc.
- ASI 42 Galaga, Intruder alert Dogs in space.
- ASI 43 Interlock Roulette Octothello etc.
- ASI 44 Nibbler, Mouse Impossible Roll on etc.
- ASI 45 Dris, Pacchess, B-Castle, Tesesse etc.
- ASI 46 Amiga Q, City, Checkers, Ouch etc.
- ASI 47 Elevation, Furmyre, Crave, Arena.
- ASI 48 Point to point, Psycho santa etc.
- ASI 49 Deathbringer n space Sae 1+2 etc.
- ASI 50 Euphorion, Roach Motel, Bolders grove.
- ASI 51 Lamers, Fighting Warrior Shapes.
- ASI 52 Rockslide, Mouthman, & Na
- ASI 53 Venus invaders, Mastermind etc.
- ASI 54 Serene, Serene II & Car Wars.
- ASI 55 Cli-tris, Pacalac & Asteroids.
- ASI 56 Stormeagle, Extreme Violence & Tiles.
- ASI 57 Poe-poo Dominoes Dizzy Diamonds Squirm.
- ASI 58 Super sud 4 Magnatron & Malessoe.
- ASI 59 Turbo thrust GX200 & Leedings.
- ASI 60 Pipe Master2 Alien Hunter & Checkers.
- ASI 61 Rattlesnake Running Chaser Scud Blaster.
- ASI 62 Pipeline 2 Mazeman & Up and Down.
- ASI 63 Nautilus Frenzy & Drive It!
- ASI 64 Oblivion (fab!) Breakout Con Kit etc.
- ASI 65 Paranoids Chess Word Puzzle Word search.
- ASI 66 Cow wars As mastermind & Asokoban.
- ASI 67 Siege of the Beast, E Type II & Vektor.
- ASI 68 Demolition Mission, Bounder & Atoms.
- ASI 69 Klondike, Celestial Apoker Bridge etc.
- ASI 70 Digital Tetris, Wangle & Tetris pro.
- ASI 71 Numerix, Battleships & Vs Tanks.
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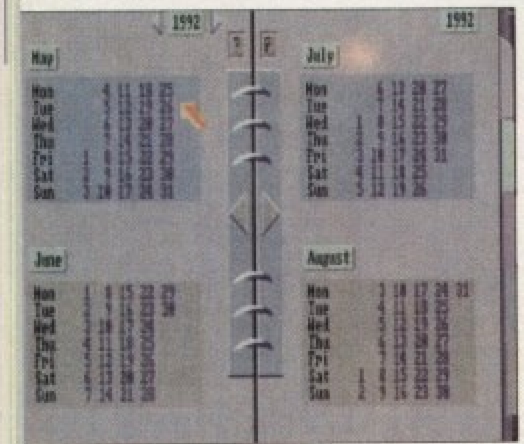
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Plan ahead with organiser!

Phil Morse assesses a bundle of games, utilities, animations and more which all share one thing in common – they cost next to nothing



PUBLIC SECTOR

Scribble Office

Scribble PD V022

Here's one of those PD disks that combines a load of previously available programs (although I must admit I've seen less than all of them before) which are, unsurprisingly, aimed at the Amiga-run home office.

The Workbench has been customised, basically with the addition of a futuristic space-style font (although the option is there to change this should you wish by messing with the Startup sequence). There's also a screen saver, which is a nice addition. So here are the programs concerned:

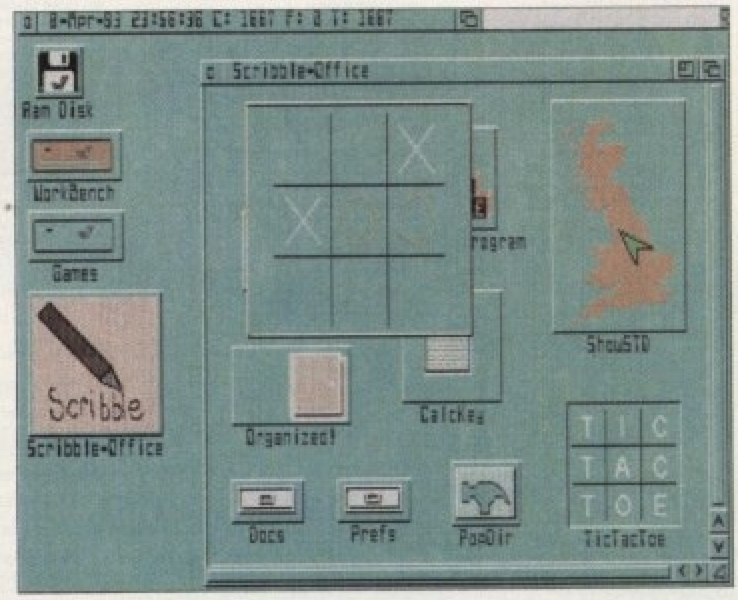
Run QED

This is a wordprocessor, and not a bad one at that. As well as adequate and indeed rather flexible editing functions, you can cut and edit letters, words, lines and so on, and take advantage of page-based features using the Shift/Amiga set of functions. All of these are also shown on menus across the top of the screen.

Other features which might surprise include a macro facility, adjustable tabs and margins (good for pre-printing formatting), and even the ability to replace tabs with spaces, so that when you hit the Tab key you actually get a number of spaces instead.

This kind of feature would be useful in, for instance, experimenting to find the best possible format for exporting Run QED files to other wordprocessors.

Of course as PD, something must give. There's no dictionary or font handling, and the whole thing does look a little basic, but nevertheless you can swap and change the colours to make it look a little more how you might want it, and as part of a bundle at this price, Run QED is a winner.



A bit of light relief with noughts and crosses, that's Tic-Tac-Toe

Show STD

Simple (indeed, the title is rather self-explanatory) but it's one of those programs you sit and mess with for as long as it takes for you to stop yourself!

Show STD displays a map of the British Isles and a small window. Clicking on the window displays a cursor, and one then types in any STD code. The program simply displays on the map where the region covered by your chosen STD code is (0663 is New Mills, Derbyshire, for instance) and tells you textually the area's name, too.

One omission is the categorising of metropolitan codes into areas. "Outer London" for 081 is hardly specific – may be a later version will include separate, larger maps of the metropolitan regions so that "061-427" elicits "Marple, Cheshire" (for it is there) rather than "Manchester".

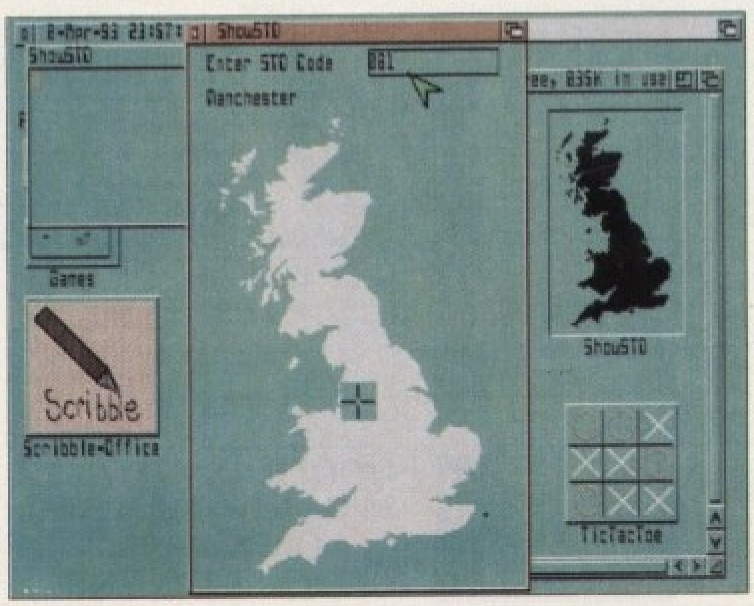
Nevertheless, it's a good little program to have kicking around your hard drive, and a great time-waster should you have ten minutes spare.

CalcKey

This is a great little calculator which can run in the background while you're doing something else, only popping up when you need it.

Pressing Alt and = displays the calculator's window, where one notices that as well as the usual calculator functions, this model incorporates A to F across the top of its keys (mouse-click or keyboard activated) meaning decimal to hex and vice versa conversions are possible.

It's a great accessory for coders who might need to use such a feature regularly, and indeed for anyone who often feels the need to reach for a calculator while computing. It's a pain to cut out of your



Ever wondered what part of the country 061 numbers are in? Show STD can help

Assassins Games 100

Roberta Smith PD

Famed for their continuing series of games compilations, Assassins 100 is a typical three-gamed compilation with Assassin's usual function-key control and very neat menu system for selecting between them.

You get Bload Runner, which is a very odd and strangely addictive platformer with tiny sprites that make lemmings look like the biggest icons this side of the Phoenix bonus stage!

You must run around the screen, up and down ladders, avoiding the tiny men who come for you by digging holes.

These make the men turn into what look to me like hay bales, which you then run into. They then disappear. Confused? Don't be, just be intrigued. Oh, and when you've got it and worked out what it's all about, please let me know!

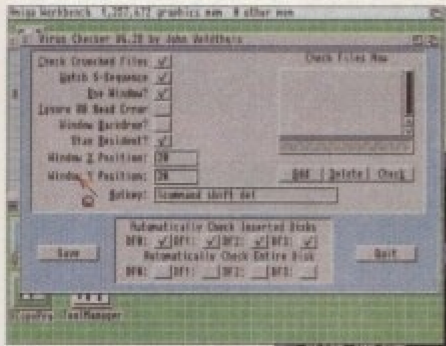
Next up is Solitaire, a game which I'm mercifully more aware of. Coming from Australia, this version contains all the usual tweaks (timer, show cards, undo last move and so on) and has some very nice graphics complementing the classic gameplay.

Good anywhere, Solitaire ports across to the Amiga quite happily and is as absorbing as your propensity to play single-person card games for hours on end.

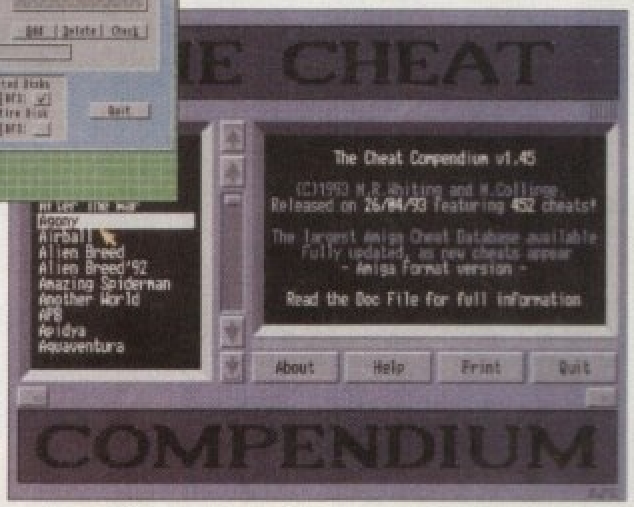
Finally, Monaco is a racing game which, although basic, is very fast and smooth and has a gorgeous picture of Monaco itself as an opening screen.

There are no bends – basically you stop cars driving up your rear and make sure you don't run into other cars, while negotiating sun, snow and night (where all you can see is what your headlights illuminate).

And it's surprisingly fun, too, being a little like those early, frantic and furious but laughably simple arcade driving sims with a seat and a steering wheel. Nice!



Virus Checker 6.28 in full operation



Fiddle over 400 games in game cheats

favourite wordprocessor half-way through a letter to the bank manager just to make a few financial calculations, and CalcKey helps you to avoid such awkwardness.

Organised!

With its name changed from FiloFax to something presumably a bit less inflammatory, Organised! is a very impressive personal organiser, with an interface very deliberately designed to mock the real thing.

You are shown a double page of an open FiloFax. To move backwards and forward you simple click on the page turning gadgets, or to move to a different section (function) you can click on the page dividers.

Different functions include a calendar, which can go forward and backwards as many years as you wish at the click of a button; a daily diary, which again is instantly flick-through-able; and a large address book, so you'll never have a full-up "S" page again!

Incidentally, there's a RIP gadget at the bottom of every address page, so ex-girl/boyfriends and other fallen from grace contacts can be removed at will.

As well as a simple notebook, there is a preferences page tucked at the back, which allows you to mess with colours, load and save data, configure the screen saver and so on.

This is a novel and attractive personal organiser which does its job extremely well. If you spend enough time in front of your computer to set up and use such a program, you won't go far wrong with this one.

The Money Program

I feel really guilty every time I see one of these personal money organiser programs. However, if you have more dedication than me and are prepared to use them on a regular basis (a built-in clock in your Amiga will help too, because you'll have to type the date in every time you start the program otherwise), such programs can help you to keep a firm grip on your money.

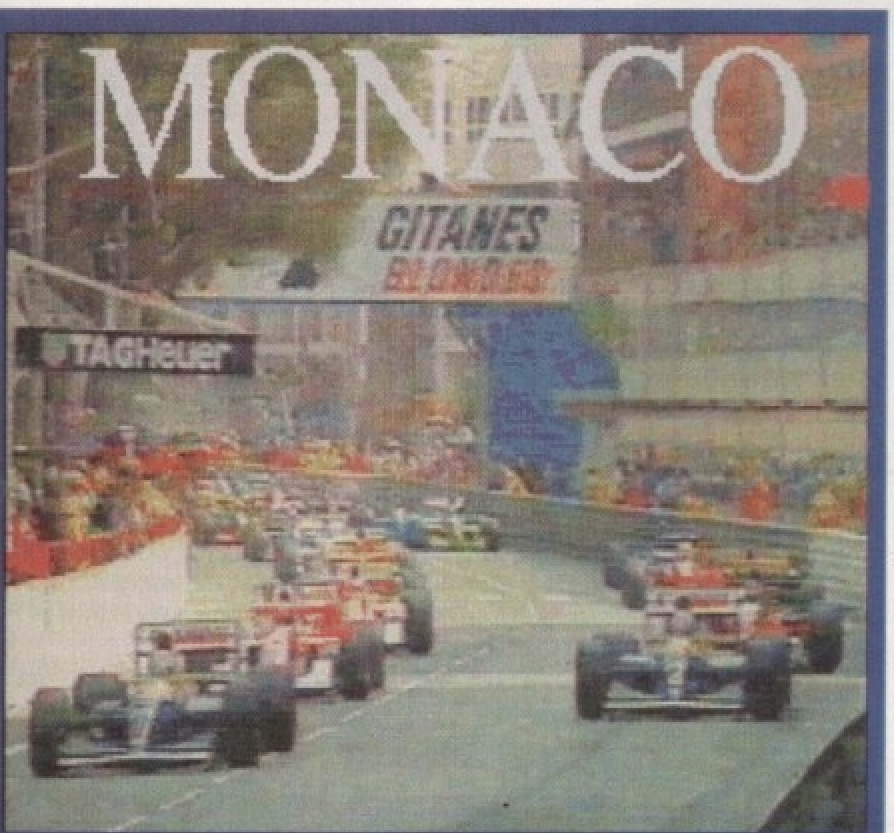
Options include the ability to enter your transactions, view them as you would on a bank statement, get a balance, run multiple accounts (a savings account, a high interest number, a woefully-empty current account, and so on) and even – should you wish to precipitate that heart attack – view your account as a graph. They've made judicial use of the colour red here, too.

It's a nice program, but I'm still not convinced that much more than a handful of highly organised people actually use programs like this. Still, I might well be proved wrong...

Tic Tac Toe

For some light relief in-between sorting out your accounts, writing to your bank manager and looking up your granny's STD code, Tic Tac Toe is a computer version of noughts and crosses – a corporate distraction put on here, presumably, for completion's sake.

● Overall, Scribble Office is an admirable, well presented and useful suite of programs, which rise above the crowd due to their nice interface and overall consistency. If you fancy more than two of these programs, buy the disk.



A great picture of Monaco opens the game of the same name

Calling all PD libraries...

...and individuals with anything remotely worth my while having a peek at. If you want something released as PD, or you're a library with stacks of hot new stuff that you haven't seen reviewed in these pages yet, why not drop me a line with a copy, full documentation and everything clearly labelled. I promise I'll at least look at your work.

From music to education, business to utilities – anything you felt deserved your shoving onto a floppy disk, lemme at it and I'll do the rest. Address?

Phil Morse, PD submissions, Amiga Computing
Europa House, Adlington Park,
Macclesfield SK10 4NP

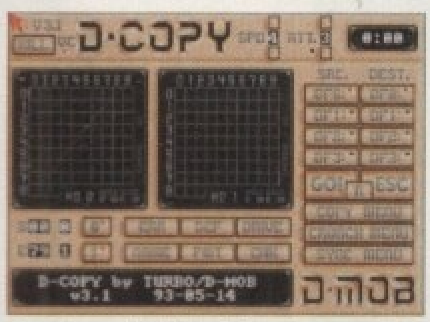
PD Compilation

Holmes Brothers PD

This compilation is nicely presented in a bag with its contents, and it does indeed contain some rather interesting and often downright useful stuff.

Among it is Virus Checker 6.28 (nice and up to date); NumPad, a neat little utility for all you A600 owners struggling with flight sims and CAD packages demanding the use of a keypad, which simulates the aforesaid; Degrader, a little utility which allows you to run earlier games on later Workbench 2/3 machines (A500+, A600, A1200, A4000); 452 (!) cheats; a number of archivers and dearchivers; and Pyro, an attractive screen saver.

If you're after just one of these, I can guarantee that once you get the disk there'll be something else on there to your liking as well. A bumper value bundle.



Complex and flexible – D-Copy is one of the best disk copiers around

DCopy 2

Roberta Smith PD

I ain't going to go into the politics of disk copying, but suffice to say that there are justifiable circumstances in which you

➤



This month's Art award goes to Carl Inc – a name which might ring bells with regular readers of this column, as one of his animations (a Christmas scene, if I recall correctly) got a right slagging courtesy of *moi.*

However, either I've mellowed or Carl has improved his programming techniques, because while Circus (this demo) follows his usual formula of presenting a cartoon scene where all the characters do little things over and over again, all of which are amusing, I found it really enjoyable.

It's the little touches, like the eyeballs of the crowd all following in unison when the human cannonball shoots through the roof of the circus marquee, that make it for me.

I was also rather amused by the clown and the dog which jumps through a hoop on demand. Indeed, wherever on the screen you look you see something chuckle-worthy taking place.

It's a nice little animation, and one that makes up in humour for what it lacks in originality.

Right Way

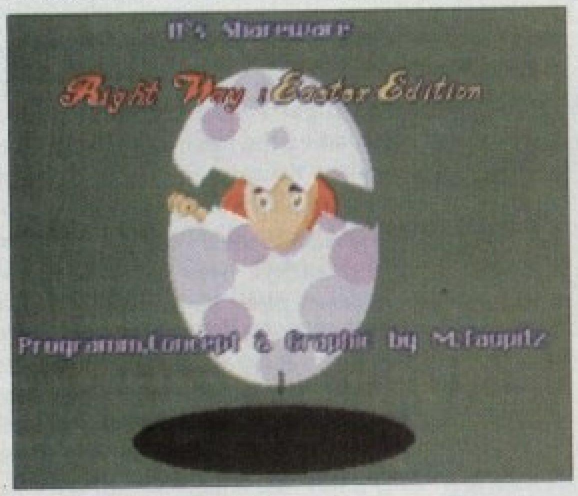
Roberta Smith

This is a German program which mercifully contains enough English to make it playable by your average Island-based xenophobe.

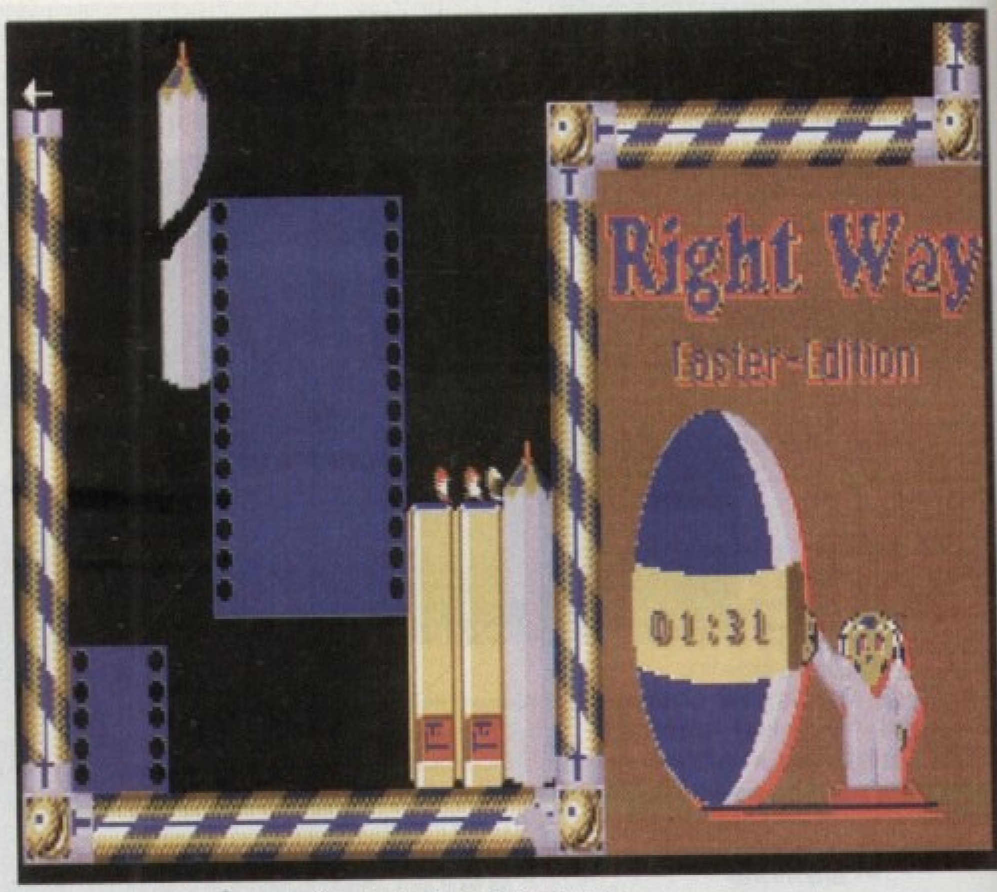
Once you're past the seemingly endless plethora of opening screens, you find yourself, joystick-clasped, guiding a load of tiny Lemming-like creature to an exit. It sounds a little like Lemmings, doesn't it? The difference is that here you don't have any control at all over the creatures themselves.

No, your task is to move the objects that make up the screen into such positions that the "lemmings" can make their way safely through.

It's a novel variation, addictive to boot, and has the added obscure value of having come from deepest Germany (I think). One worthy of further investigation.



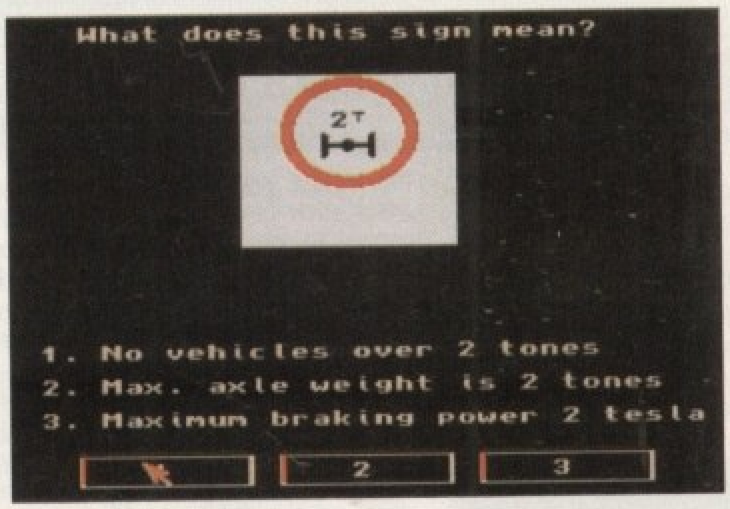
Does this character remind you of something Lemming-like?



A bit like Neighbours, this Easter edition is a little late in the showing

might wish to back up a disk which the manufacturers have tried their hardest to stop you from backing up.

To use DCopy2 to its full potential requires experience of trying to copy disks and a good read of the documentation, but once you've acquired a modicum of knowledge about the subject you'll find this new version of an old classic to be powerful and flexible.



Test your highway code with Mungus

Code Mungus

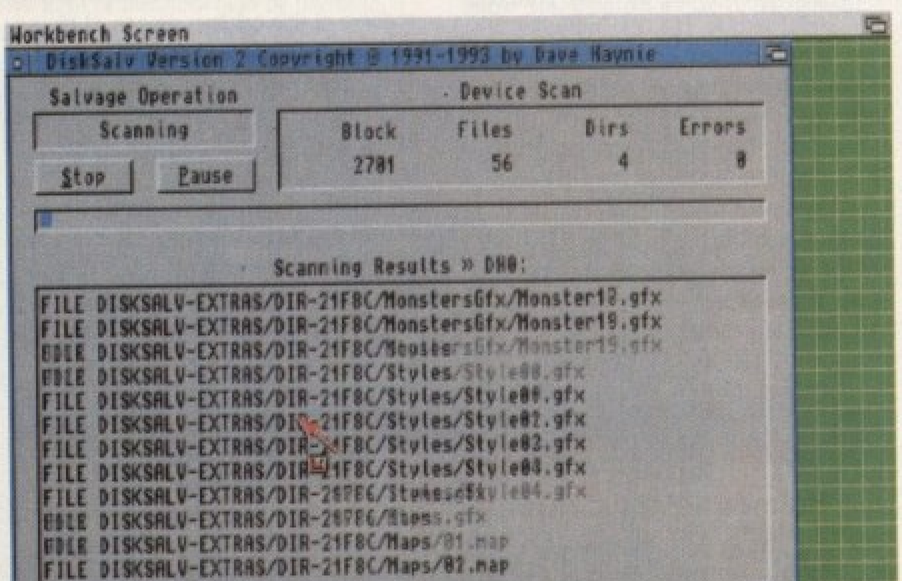
Nicholas Smith

It's quite easy to write programs to test the user on a certain subject. It's peanuts to create the kind of code needed to prompt a question, take an answer from the user and act on it. But that's not to say that there's no worth in such programs. Indeed, if they are carefully tailored to a genuinely useful subject area, they get my thumbs up. And so it is with the mysteriously named Code Mungus. Not a secret service code, this is actually referring to the altogether less enigmatic but infinitely more useful highway code.

The program asks you ten question of a textual nature ("What do three lines on the kerb mean?" for instance) followed by ten road sign questions, where you get a full colour representation of the road sign complete with a question.

After a total of 20 questions, you're given a mark and an author's personal comment ("OK but could do better" – you know, that kind of thing).

It's a simple program, but a highly useful one, It helped me to brush up on a few things I definitely should have known, and for those learning to drive, it would prove invaluable.



Look at any drive, and DiskSalv2 will give you a complete report

DiskSalv 2

Dynamic Designs

This is a very slick, very well presented, and above all, very functional disk repair utility, along the lines of a program we use called Norton Utilities on the Mac (which, needless to say, costs an arm and a leg).

On the Amiga side, DiskSalv 2 is basically like the legendary Fixdisk, except it boast a few improvements to make it far more useful to today's Amiga user.

The 49Mb limit imposed on Fixdisk by itself – meaning users of half-decent sized hard drives were not fully catered for – is not a problem in DiskSalv, and it is fully conversant with all the new file and folders types associated with Workbench 2 and 3 machines.

It looks good, works well and is an absolute must for anyone without such a utility, or bugged by one of the limitations that DiskSalv 2 can circumvent.

Contact addresses

Bizarre Software, The Old Thatch, Main Street, Tingewick MK18 4NN

Dynamic Designs, 63 Daleside Avenue, Pudsey, Leeds LS28 8HB

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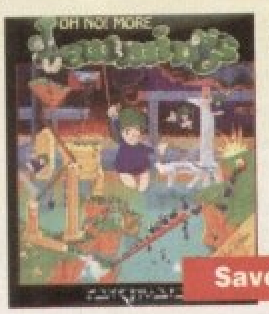
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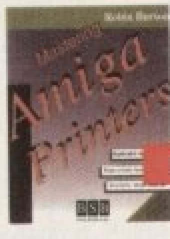


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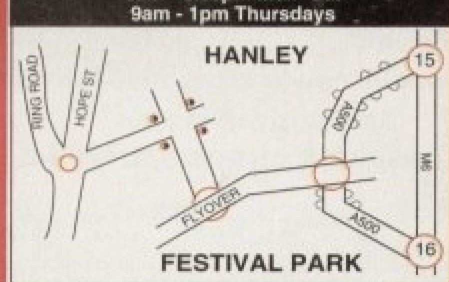
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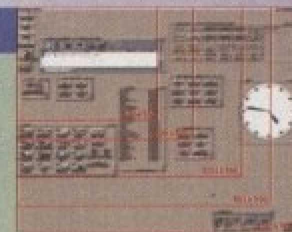
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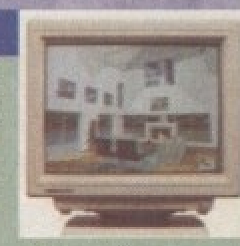
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Picasso is a graphics acceleration card for the A2000, A3000 and A4000. It gives you resolutions of up to 1280 x 1024 in 256 colours and can be used by programs such as Personal Paint, AD-Pro, Pagestream, XCAD-3000, Wordworth and many others! Easy-to-fit and requiring only one monitor Picasso is the solution to your high resolution needs. If you've ever looked enviously at a friend's PC running Windows in 800 x 600, go one better and run your programs at 1280 x 1024!

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IDEK



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CONTENTS





Diggers: the first CD32 game to hit the shelves

From disk to disc

With the arrival of CD32, the entire video games market is about to change for ever. Amiga Computing takes a look at the future and the mouth-watering entertainment we can all expect from it

Ten years ago, the vast majority of computer gamers were loading their favourite games from domestic tape recorders and waiting up to 15 minutes for the 64k or so of game data to transfer to their machine's memory chips.

Floppy disks and hard drives were around at the time, but they were mostly the preserve of much more expensive machines.

A disk drive for the C64 holding only 170k of data on 5.25in disks, and almost as slow as tape, cost £30 more than an A600 does today, and hard drives of more than 10Mb in capacity were considered to be huge.

Spectrum owners who bought Microdrives were astonished by the speed and flexibility of the device, which illustrates just how little we all expected.

With the advent of the Atari ST and the Amiga, we leaped from 8-bit to 16-bit, from tape to floppy, and the modern home computer games market was born. Few had hard drives, and CD, never mind CD-ROM, was still on the drawing board.

In 1993 the next step on the evolutionary ladder is being taken by machines such as CD-I, Mega CD, and the superb new CD32.

For owners of the new Amiga, floppy-based games with their slow loading times and multiple disk swaps will be nothing more than a fading memory, and the restrictions of the storage medium will be blown away by the compact disc's 600Mb of space.

It is clear that although the technology built in to the CD32 is little different from the A1200, its alliance of 32-bit power and the CD medium will result in a whole new generation of games.

Even more dramatic improvements are promised by full motion video (FMV) when Commodore release the Mpeg add-on card between now and Christmas, though whether software houses will use FMV in actual games is a moot point.

What we can promise you is an explosion in gaming quality, music videos on CD, and feature films with full digital video and CD-quality sound which never get chewed up, never look like a snowstorm, and which do away with the tracking button on VCRs.

The games explosion may take six months or more – until the software houses really get their teeth into this new Amiga – but from the early signs and screenshots we've seen and included in these pages, you'll agree that the fuse has been well and truly lit.

Stevie

CD big bang

As the music, video, and computer games industries rush towards each other at high speed, Stevie Kennedy looks at what the result of the collision might be

All this year marketing suits and trend analysts across the leisure industry have been hitting the trail, profit forecasts in one hand and CD in the other, to preach the new faith to the press and the buying public.

CD is on the verge of a second coming, they tell us, with record, film, and video games sectors about to meet in the middle for the biggest explosion in the leisure field since Space Invaders.

Cross-fertilisation is nothing new – games have always leeched off the film and music industry for ideas, soundtracks, and movie licences. What is new this year is that for the first time, all three types of entertainment are beginning to appear on the same medium and even the same disc.

The opportunities for cashing in are endless, and it is this scent of fresh meat which has set the big boys in the expensive Italian suits to quivering with dollar-drugged excitement. New markets in the leisure field are hard to come by, but this one still has the wrapping paper on.

Take the typical computer game movie tie-in as an example. At present the marketing possibilities are good, with extra publicity for both game and film, T-shirts, posters, and stickers in the box, and PR executives hyping it all until they drop. By next year, an extra dimension will have been added.

Imagine popping Steven Seagal's latest blockbuster (in which he finally opens his eyes) into a CD32, watching five minutes of FMV video trailer, then browsing through a selection of Ham8 stills from the movie's action sequences before proceeding to the game.

Imagine then a game involving huge chunks of action digitised directly from the movie, superb stereo movie soundtrack, and featuring Mr Seagal himself (fully digitised of course) as the game's main proponent of bloody mayhem.

Does this sound better than a box containing a poster, a set of stick-on Seagal eyebrows, and a game with one inch high sprites chasing each other across 32-colour platforms to the strain of yet another mind-blowingly banal tune? If not, you must be one of those people who insisted that the text adventure would always be superior to those with crude graphics.

If the scenario sounds good from a consumer's point of view, take a minute to see things from the viewpoint of our salivating salesperson. 600Mb of disc space – 74 minutes of full motion video when using Mpeg – means ample room for advertising, 0898 competitions, catalogues, information services, and a host of other promotional material all on the same disc as the much more welcome film, game, and soundtrack.

The notion of watching films and proper TV-style ads on a CD disc seems strange at the moment, but it won't be long before it is as accepted as watching a film playing off a piece of magnetic tape. One look at CD32 going through its FMV paces will be enough to convince anyone.

Again, if Video CD takes off in the mass market, the boredom of fast forwarding through the first two episodes of Blackadder to reach your favourite will be replaced by simply jumping between tracks in exactly the same way as flipping through an audio CD album.

A luxury at first, this will soon become commonplace and the notion of using a VCR for viewing commercial movies will seem rather primitive.

A spokesman from Philips, main moving force behind CD-I, confirmed that a number of major manufacturers are working on their own CD players which, though not designed to play games, will be compatible with Video CD and which will feature Mpeg chips either as add-ons or as an integral facility.

> *We'll give people music on toenails and egg shells if that's what they want*
>
> Jeff Clark-Meads, British Phonographic Industry

In the near future it is hoped that Mpeg chips will come down in price enough to make them viable as standard technology on all such players.

At this point, the mass market for Video CD should be confirmed and the big music and video companies should weigh in with their massive financial muscle. Games on CD-ROM will, if anything, be by far the smallest section of the new market.

Ask yourself if the number of titles available on all home computers comes close to scratching the surface of the array of tapes, LPs, and videos on sale in thousands of high street shops, and your answer should point to the relative sizes of the markets.

Given the way that games, movies and music should be

Slow starter

Many observers at the birth of Video CD took delight in predicting that the market was going to explode, but an initial burst of sales is unlikely. CD32 will see huge sales because its games software will be superb, but it will be a long hard slog for straightforward Video CD players.

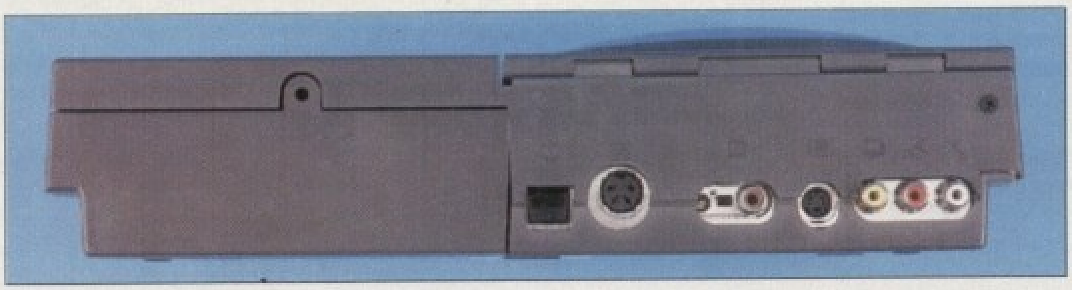
In the first year of commercially viable audio CD, only around 20,000 players were sold in the UK, mostly to classical music buffs who were eager for compact disc's crystal clear sound quality. The first year of Video CD is likely to see a repeat of this sales curve.

Movie buffs with generous wallets have already shown that they will fork out impressive sums on 12 inch Laserdisc machines, a high-end expensive format which has seen a steady increase in support by way of the sort of cult films which aficionados crave.

This section of the movie-watching community will be the first to jump on Video CD, closely followed by music fans to whom the digital rock video with perfect sound appeals.

Unfortunately, the rest of us will probably stick with our audio CDs and VCRs for a while, held back by the inertia of owning perhaps hundreds of pounds worth of movies on tape. This will last as long as it takes for the standard to grow until the benefits make it too good to pass up, and if high street shops can offer a service whereby tapes are transferred to CD in the same way a Kodak shop will put snapshots on Photo-CD, the take-up rate could be huge.

Watch for a rapid boom around Christmas 1994 and a drop in the price of Video CD players once competition stiffens. With Philips, NEC, Sony and the rest battling for market share, the Video CD player will be as common in two years as the audio CD player has become today.



CD32 can connect to almost any monitor or TV



coming together in one big Video CD marketplace, the opportunities for profit are immense, a sure way of ensuring that the format really takes off.

With so much competition these days between the different ways in which we can spend our leisure time, sales in most areas have suffered from the competition of completely different media. Music sales in particular have been hit by computer game sales, and if the music industry can make a push in a new market it will certainly do so.

A number of music videos are already slated for production in Video CD format, mostly live concerts, including U2's Achtung Baby, and more are bound to follow. CD mastering costs are as little as 35p per disc when bulk duplication is used, and the cost per minute of digitising video footage in Mpeg format is steadily decreasing.

Hollywood too is beginning to get steamed up around the collar by the possibilities of releasing films in a format which would never degrade (no more muffled soundtracks and white lines) and which would meet the buff's hunger for the best quality. Paramount studios, part of the MCA group which has a big interest in 3DO, have signed a deal already with Philips to produce movies on CD and they expect 30 to 50 titles to be available this side of Christmas.

Commodore have their own movie link-up, but are saying nothing about it and saving it for the launch of the FMV card, which now looks set for release in the second half of October. Obviously, when movie companies start to take an interest, the smell of money becomes almost overpowering.

With such high-powered interest and the possibilities offered to all sorts of companies by Video CD, 1994 could be the year of the five inch disc, and any new owners of CD32 can rest safe in the knowledge that they are in it at ground level.

Failing formats

Video CD is based around the Mpeg 1 protocols, agreed on paper a couple of years ago and now appearing in physical form as Mpeg decoder chips.

The format sets out how video and audio signals will be compressed for storage on CD then decompressed as they are played, and has finally managed to gain enough support to be an industry standard.

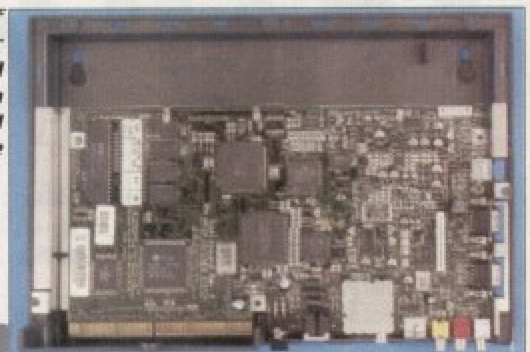
Other competing formats have failed, though, so why should this one succeed? Betamax videos, Digital Audio Tape and MSX computers spring to mind as formats which seemed to have a lot going for them but which died horrible commercial deaths.

Betamax failed because it was more expensive, even if of a higher quality than VHS, and DAT took a dive because it was overkill and much more expensive than CD. Finally, MSX failed because though cheap and well supported by Japanese electronics companies, it was the technical equivalent of a dead dog.

Video CD will succeed because it meets the main benchmarks for any new standard. Simply put, the technology on which it is based is available now and at a commercially viable price, and it offers a format which provides good marketing opportunities. If a new gadget is reasonable value for money and does something nothing else can do, it will succeed.

Of course, the final judgement will be down to you and me and whether we spend our hard-earned pennies on it. I know what I'm going to do – what about you lot?

A lot of power packed into a small space



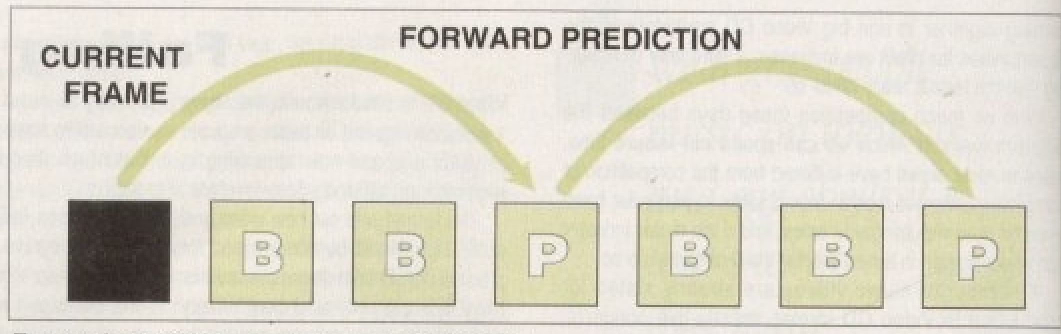


Data compression has always been one of the most important utilities on computer systems with finite storage and limited memory, but it wasn't until recently that this standard procedure was applied to graphics in such a way as to improve the way we use them.

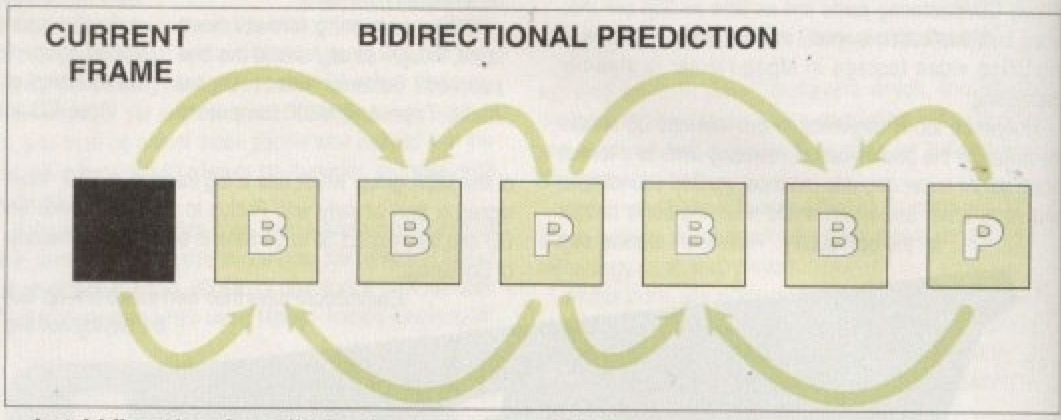
The first accepted standard was Jpeg, named after the Joint Photographic Experts Group which was formed by researchers in the fields of computers and photography to devise a common way of storing masses of data without killing picture quality. Jpeg works by using complex mathematical methods to scan a graphic and encrypt it in such a way that information normally stored in, say, IFF or TIFF or GIF formats, is compressed into a much more economical and universally accepted form.

Depending on the amount of compression used, picture quality once the Jpeg is decoded can be virtually identical to the original even though the Jpeg file itself can be one tenth the size on disk. The only problem with Jpegs is that they take a lot of decoding, even on an A4000, and are suitable only for single image files.

For animated images, particularly large digitised graphics, a new standard was required, and in May 1988 the Motion Picture Experts Group (Mpeg) was formed under the auspices of the International Standards Organisation (ISO). Starting with a set of proposals on paper which invlolved nothing more than complex algorithms, calculations, and formulae for encoding and decoding files, Mpeg gradually gained acceptance from most of the big players in the market and the standard was born on 6 December, 1991 as ISO draft standard CD11172.



Forward prediction is simple and effective...



...but bidirectional prediction is much more efficient

The whizz chips

Mpeg has finally made it from drawing board to full production. Let's see what it is and why it is so important

Mpeg files can be created and played back on an accelerated Amiga, and shareware Mpeg player programs already exist to make viewing Mpeg movies possible, but the nature of the intense mathematics of decoding the files necessitated the production of specially designed chips whose sole purpose in life was to cope with this operation. The passage from drawing board to commercial Mpeg decoder add-ons has been slow, but is now complete.

In brief (Mpeg's precise technical format stretches to a 100-page book), an Mpeg signal is a data stream consisting of two parts: A system stream which holds information about timing and so on, and a compression layer which holds the compressed picture and audio data. An Mpeg decoding system therefore contains a number of chips.

The first is a system decoder, which splits the picture, audio, and timing information into three separate streams. Each of the picture and audio streams are then sent to their own decoding chips, and the timing information is applied to both as decompression takes place so that the newly decoded data comes out in an intelligible video signal with the actors' voices coinciding with their lip movements.

To compress the immense amounts of data being shoved out by a video in the first place, an Mpeg encoder is used to store the frames in a very clever fashion. However, anyone who has ever used DPaint to create an animation should be able to relate to the process.

The difference between one frame and another in any DPaint anim is usually fairly small, much smaller in terms of bytes than the amount of data in a full frame. It is therefore a lot easier to store the second frame as a representation of the differences between itself and the preceding frame. Get it?

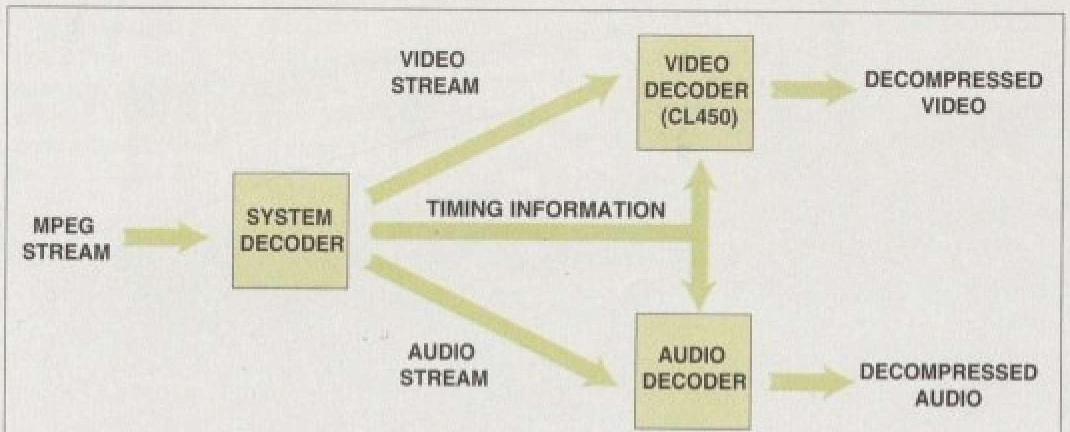
In other words, frame two is stored as the computer equivalent of "same as last time except the bit in the top left hand corner just moved to its right". In DPaint, this is known as a Delta, whereas in Mpeg it is called a Predicted Picture, or P-Picture.

These use Intra Pictures, pictures stored as complete frames, for reference when predicting what motion changes will have taken place by the time their turn comes to be shown. There is an I-Picture every half second to provide enough reference points for accurate prediction and to fill the important role of providing reference points in the stream.

Augmenting the I- and P-Pictures are the B-Pictures, or Bidirectional Pictures, which look forward and backward at the same time to previous and following frames in order to guess how they will have changed. Compressing down far smaller than any other type, there are two B-Pictures for every P-Picture and it is these which give Mpeg its excellent compression rates.

An intelligent function of the Mpeg algorithm is to alter its compression method to suit the needs of a particular digitised sequence. If, for example, the sequence will be accessed randomly by the user – perhaps to enable the editing together of digital video footage to a target VCR – the number of I-Pictures is set to two per second, and decreased when a piece of footage will never be accessed in this way.

For example, a rock video transferred to CD would not require many I-Pictures, but a library of computer animations might need to be accessed at almost any point. Mpeg provides flexibility for all occasions, and though Mpeg-2 is already on the drawing board, like the now very old VHS format it is highly unlikely that Mpeg 1 will be bypassed as an industry standard for many years to come.



This is how a basic Meg.decoder system links up

What's in the box?

CD32 is set to wow and amaze users with the quality of its games, but what makes the little chap tick?



Dreamweb is an adult adventure in 256 glorious colours

By the time of its release, the Amiga 1200 had only its price tag to offer as a surprise. Most of us were prepared for a £499 launch, so £399 was a pleasant surprise and guaranteed an initial wave of sales.

CD32, on the other hand, was kept much more under wraps by Commodore, the scarcity of pre-launch information made all the more unusual because several games companies received prototypes six months in advance.

The result was that a collection of duff rumours and speculation kept us all guessing more or less until launch day.

Magazines printed "best guess" stories about the machine's specs and produced artist's impressions with widely varying degrees of accuracy, and rumours that the machine might have a 68030 or even Mpeg chips built in were rife.

Through all of this, Commodore kept more or less silent, presumably because they didn't want speculation about specifications and price points to spoil the party when their latest debutante finally came out.

The strategy was a success, and only the muted disappointment that CD32's price was more than the hoped-for £250 marred an otherwise perfect launch. A reaction which Commodore could not have predicted was the grudging acceptance of the unit's vital statistics.

Perhaps they thought that a 32-bit machine with 2Mb RAM, near 24-bit graphics, and a CD-ROM drive was good enough for most people, but grumbles could still be heard emanating from some developers. Why?

CD32 is based around a 32-bit 68EC020 chip running at 14MHz and delivering between three and five times the power of a 68000 as found in the A500 and A600.

With such a CPU, CD32 is easily the most powerful of the CD options on offer, and blows away both Mega CD and CD-I in terms of raw speed.

However, games developers have complained that it still isn't powerful enough. Comparing the machine to the usual 486 PC games machine with CD-ROM drive, some have mumbled that CD32 will be unable to keep up in terms of speed with the faster PCs and that as a result some PC CD-ROM games will not be convertible.

Significantly, most of the grumblers are those who have yet to produce for the format. Those who have had prototypes and have been coding furiously for months are very pleased with the hardware.

The AGA chip set gives game programmers the advantage of using dual playfield graphics for ultra smooth scrolling and parallax effects. The much improved sprites are bigger and more colourful, and graphics speed is greater than on ECS machines.

In combination with 2Mb of 32-bit RAM and a 68020, these elements form a powerful partnership which should be capable of handling just about anything thrown at it.

AGA's so-called "4x" blitter, the chip responsible for transferring large blocks of graphic data from RAM to screen, can throw millions of bytes at the screen every second, making possible the smooth, fast gameplay we've all come to expect.

As the AGA chip set is only a year old, games programmers are still exploring the improvements which can be gained by coding specifically for it, and we are only now starting to see the benefits in the shape of enhanced A1200 versions of games.

In some cases, the 68EC020's lack of power in relation to the 486 will see some games run slower than their PC equivalents, but as most are programmed with the massive user base of 386 users in mind, there should be precious few of these.

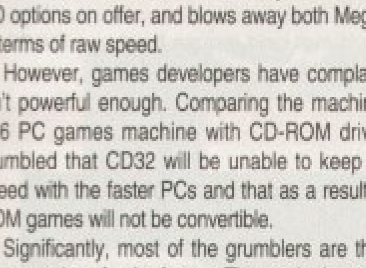
Given time to properly exploit the AGA chips and increasing experience with the possibilities of CD-ROM, companies which in the past have stretched the A500 to its limits will no doubt bring us a feast of superb games. Having seen the delights on offer from the first batch, we can only lick our collective lips at the thought of what will appear on our shelves next year.

Conversions galore

Though there is a long list of brand new games waiting to be released on CD, it would be a fool who ignored the fact that many companies will simply convert old Amiga games to run off CD.

Such bundling no doubt offers great value for money, but the only conversions which will take advantage of the machine's extra colours will be those which come over from the PC.

CD32 has an extra chip, called a Planar chip, which is designed to access PC-style graphics from disc or memory, then convert them at lightning fast speed to Amiga graphics.



Massive storage space means massive games

In the PC world, a game which uses texture mapping (see the landscapes on Falcon 3 for an example) or a great deal of shifting huge pseudo-sprites around (as in Wing Commander) stores its graphics in what is called byte-per-pixel format.

This otherwise inflexible system is a great advantage for games because it means each pixel is stored in memory as a single byte rather than as part of a multiple-bitplane image, which means it takes only one memory write to change its colour rather than the eight it would take for an 8-bit image (256 colours) on the Amiga.

In effect, this mean that games houses will be able to use exactly the same graphics on the Amiga and PC versions of a game, making it easy both to convert existing games and to develop new games for both machines at the same time.

Some of the immediate benefits will be seen in games like Dreamweb and Cyberspace, and it won't be long before a steady stream of big 256-colour games start to roll off the duplicating machines.

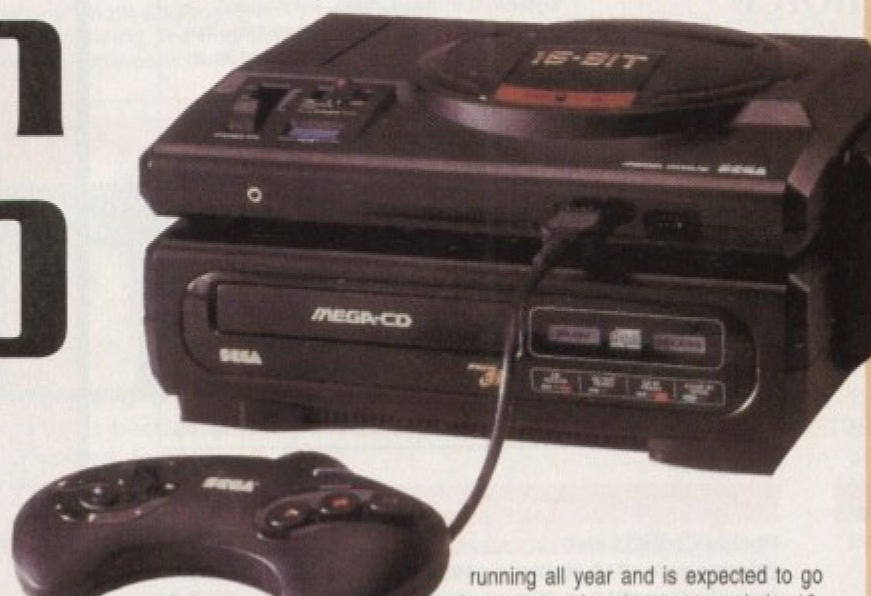


Cyberspace promises full 3D perspective and smooth scrolling

Amiga CD32
Price: £299
Available: Now
RAM: 2Mb
Graphics: 256 from 16.4 million or Ham8 262,000
CPU: 14MHz 32-bit 68EC020
FMV: Available late 1993, price TBA

Sonic sinks on CD

Mega CD has the publicity, the profile, and the user base, but has it got the quality the public demands?



Since the phenomenal success of the Mega Drive, which has seen its sales in the UK climb towards one million, many industry figures have become mesmerised by the oriental threat to other games machines.

However, the sluggish sales of Mega CD and the poor quality of many of the games available for it have exposed a gaping chink in Sonic's armour which most now believe spells the end of the Sega invasion.

Mega CD is, technologically, an old unit. Based on the 16-bit Mega Drive, it is firmly anchored in yesterday's chips, though the machine does have several advantages over its cartridge-based brother.

A 64k RAM buffer for faster loading of data from disc and a 12.5MHz 68000 chip – twice as fast as the Mega Drive – ensure that Mega CD games will run faster and smoother than those on the original Mega Drive, and it goes without saying that CD provides unique games opportunities.

The most exciting new Mega CD title, Sewer Shark, makes extensive use of digitised footage for its intro sequences and packs a huge amount of game data onto the disc.

However, it has no more colours on screen than any standard Mega Drive game (64 from a palette of 512) and uses the same 8-bit PCM sound which, without reverb, sounds no better than the Amiga's output.

Mega CD does have the ability to play audio CDs and those in the CD+G (G for graphics) format, but it has no facility whereby FMV can be added, so owners will never be able to join in the Video CD boom or watch feature films on their games machine.

In addition, the fact that Sega are being left behind on a world-wide CD standard is a bad omen for the future.

Not all is bad news for Sega, though, as they at least have thousands of units in living rooms nationwide, and ample stocks in the high street to ensure an aggressive presence. The Sega TV advertising campaign has been running all year and is expected to go into top gear for what must surely be 16-bit's last big Christmas.

If the package arrives with a couple of good CD games such as Sewer Shark, Mega CD might yet have a good Christmas and could yet steal some of the thunder from CD32 if Commodore's much superior machine is outshone in the PR department.

With the shift in technology going against Sega, the only weapon left to them is marketing muscle, a commodity which they have in plentiful supply.

BEST GAMES

Commodore must cling to the hope that the British public aren't as stupid as some marketing stuffed suits seem to think, and that they won't be fooled by mutton dressed as lamb.

In the end, as with the other two competing systems, the final winner – in the short term at least – will be the one with the best games, and the Sega is certainly out of the running on that score.

In terms of price, Mega CD is rather expensive for a 16-bit system, currently selling for £370 including the Mega Drive, or £270 without.

This puts it at a distinct disadvantage to CD32, which can boast not only better technology, but a lower price tag. However, Sega's long established brand name is firmly emblazoned in the minds of hundreds of thousands of games players, and it may take a while for such advantages to wipe it out.

Sega Mega CD
Price: £370 with Mega Drive
Available: Now
RAM: 128k
Graphics: 64 colours from 512
CPU: 12.5MHz 68000
FMV: Not available

Mega CD games

Most of the Mega CD games released at the machine's launch were, predictably enough, fairly straightforward conversions from old Mega Drive games. However, as the months have gone by, proper CD titles have started to emerge.

The first to take real advantage of Mega CD was probably Jaguar XJ220, superior to any racing game on the cartridge system with fast, smooth gameplay and lots of it. Acres of intro animation and a quality soundtrack gave Sega owners a taste of what CD could do for them and the game was a big hit. Other titles to appear on CD have been less impressive, including many recent ports such as Prince of Persia, but there have been a couple of exceptions.

Road Avenger, for instance, is unique in that it uses cartoon-style graphics in a Death Race 2000-style scenario, with masses of animation on disc running under a Dragon's Lair system of joystick movements.

While not the most interactive of games, and restricted to cartoon graphics by Mega CD's poor graphics, Road Avenger is a definite improvement over its predecessors and a game which at least takes advantage of the CD's mass storage capabilities.

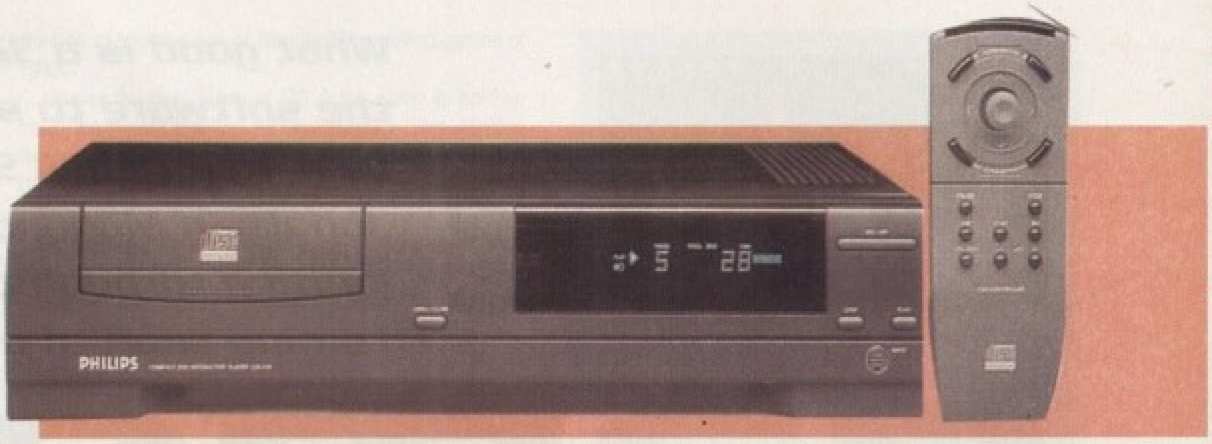


Future releases show a much better line-up, with titles such as Sherlock Holmes, an arcade quality Golden Axe (remember the superb original?) and beat-'em-ups such as Streets of Rage.

Whether these games will be of sufficient quality to match CD32's eventual output is doubtful, but they will at least be on the streets and available.







Philips' latest CD-I player – the CD1210

Big money backers

Compact Disc Interactive (CD-I) was launched last year into a market which had already given CDTV a resounding kick into touch, and has so far failed to sell in volume.

However, with a cheaper player unit and the backing of big names like Sony and Philips, what looked at first like another adventurous turkey could turn out to be a strong contender in the new CD marketplace.

With a user base of only about 25,000 in the UK, CD-I has a long way to go, but the software titles now being released promise much for the machine's future, and plans by its backers to invest heavily in Full Motion Video titles could result in more enthusiastic public interest.

Initially released as a home entertainment system much like CDTV, CD-I is based around a custom 68000 chip called the 68070, running at 16MHz, but still chained to the 68000's 16-bit architecture.

There are no real graphics co-processor chips such as the Amiga's Alice and Lisa chips, and memory is only 1Mb as opposed to CD32's 2Mb.

Tech specs in the unit's favour are its support for Photo-CD, S-VHS output, and 256 colour screens from a 24-bit palette. These are, of course, all available on CD32 with the benefit of Ham8 for backdrops and static artwork, but their inclusion in the CD-I line-up means that there is less of a gap between this format as between CD32 and the lamentable Mega CD.

In a side-by-side comparison, CD32's 32-bit processor, custom architecture and planar conversion chip give it a clear lead, but customers rarely have the benefit of such direct tests.

Of much more importance in the race for your wallet is the way in which a product is sold and how good its software support is.

Ominously, Philips have a distinct edge in the first area with a marketing push planned for Christmas which will centre around a hefty TV advertising campaign and which will feature FMV titles to best advantage.

It goes without saying that the CD-I marketing budget will outweigh that which Commodore can offer for CD32, but not everything will come down to mere selling power.

LEVEL FOOTING

Software will be the key to success for both formats, and having seen the planned releases, it is likely that sales will be good for both Commodore and Philips.

With a new low price player and financial backing, CD-I could be CD32's biggest threat

Starting from a software base as poor as the dire rubbish which popped up on CDTV, CD-I will have to rely on new software to make its push, and will therefore start on a level footing with CD32.

CD-I software

Titles due for imminent release on CD-I include Seventh Guest, the graphically superb adventure game which has wowed the PC world on CD-ROM, and Voyeur, described in the blurb as "the first interactive political thriller".



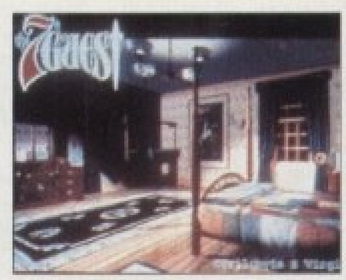
Voyeur

Based in a mansion full of scheming two-faced politicians and their cohorts, Voyeur, as its title suggests, involves the gamester in peeking through doors and windows to capture on camcorder the wheelings, dealings, and plottings of the morally bankrupt cast.

By collecting enough information about the political conspiracy being hatched, the player can elect either to inform the police when he or she believes the evidence is irrefutable or use the recorded footage to warn another character about the backstabbing looming in the near future.

Shot using live actors (Robert Culp is among them) and set against a 3D computer set using what the maker's describe as a revolutionary technique, Voyeur will provide a visual feast.

How its interactivity and gameplay shape up remains to be seen, but from the initial screenshots, this is clearly the sort of title which will generate enthusiasm and sell a few CD-I players. Other titles include International Tennis Open, a far cry from the dross that was the original CD-I Golf game, and Zelda: The Wand of Gamelon, a more traditional PC-style graphical adventure.



Seventh Guest

Neither promises to forge into new gaming territory, but both are at least of a quality which should hold its own against comparable CD32 games.

Full Motion Video, to be added at a cost of £150 when the CD-I Mpeg decoder is release in October, seems not to promise much in the way of gaming support, and is far more likely to be used for the linear (non-interactive) Video CD format. Any title released on this format will, of course, run on an Mpeg-equipped CD32, but the availability of music videos and feature films (Philips have a deal with Paramount to release movies on CD) in combination with games of the quality of Voyeur and Seventh Guest will make CD-I a tempting buy, even if £100 more expensive than CD32.

Philips CD1210
Price: £399
Available: September
RAM: 1Mb
Graphics: 256 from 16.4 million
CPU: 16MHz 16-bit 68070
FMV: Available October, price £150

CD32 games

What good is a 32-bit machine without the software to support it? Over the next four pages Simon Clays and Jonathan Maddock take you on a journey through preview heaven. Coming soon to a screen near you soon...

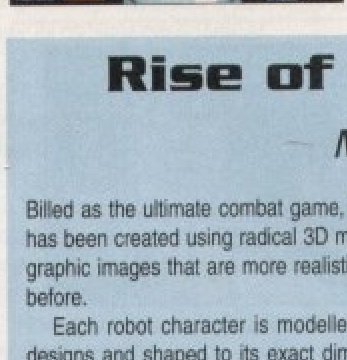
Microcosm

Psygnosis

If you want fancy graphics then look no further than Microcosm. It was first planned for release on the CDTV and opened most people's eyes, but then the machine didn't fare too well and so the project was shelved.

The CD32 was then released and some clever person at Psygnosis decided to restart work on Microcosm and it looks like being even better than before.

The plot isn't too dismiliar to Fantastic Voyage and Inner Space. A high corporate boss decides to be injected into his rival, so that he can control both megacorporations.



He is minaturised with a team of warriors to go and seek out to try and manipulate his brain. Your task is to be placed inside a super fighter, minaturised and injected into the boss' bloodstream where you can seek out and kill all the bad guys.

The graphics are just astoundingly good and are all ray-traced with 3D light-sourcing being used to create some amazing effects.

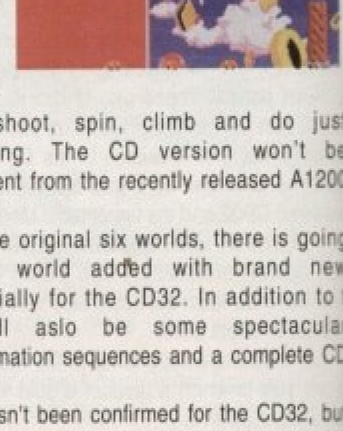
There are over 500Mb of graphic and sound data, a multiple frame rate of up to 60 frames/second, a maximum of 32,768 colours and an original soundtrack by Rick Wakeman.

Just to prove how good the graphics are, Psygnosis are actually using in-game screenshots as the artwork for the box. Whether or not the game will forsake playability for graphics we shall have to wait and see.

Zool

Gremlin

One of the biggest selling Amiga games is making its way to the CD32 and is destined to become a big hit. The original was a massive arcade adventure with addictive gameplay, awesome graphics and full-screen parallax scrolling.



One of the fastest platformers that you can buy, Zool is a Ninja of the Nth Dimension who can jump, punch, kick, shoot, spin, climb and do just about everything. The CD version won't be that much different from the recently released A1200 version.

As well as the original six worlds, there is going to be a new world added with brand new graphics especially for the CD32. In addition to t his there will aslo be some spectacular 3D-rendered animation sequences and a complete CD soundtrack.

Zool 2 still hasn't been confirmed for the CD32, but there is a 99 per cent chance that you'll see it for Commodore's brand new machine.

Rise of the Robots

Mirage

Billed as the ultimate combat game, Rise of the Robots will arrive this Christmas. Rise has been created using radical 3D modelling software producing high quality ray-traced graphic images that are more realistic, more animated and more controllable than ever before.

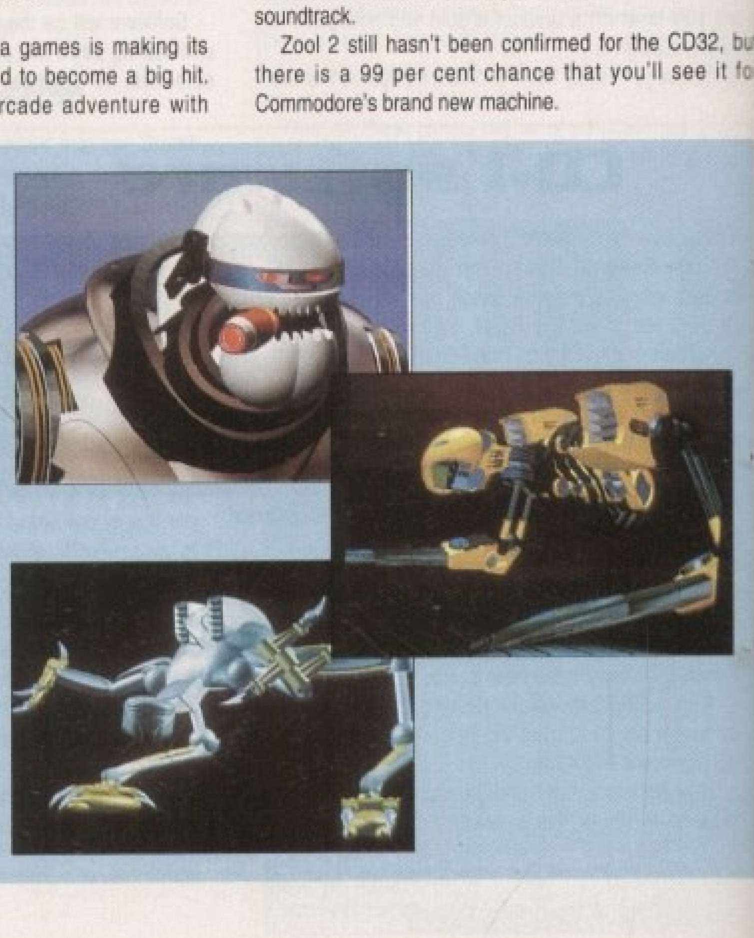
Each robot character is modelled element by element from the original blueprint designs and shaped to its exact dimensions. Once a robot's body parts are modelled the whole figure is linked hierarchically, enabling the robot to animate realistically.

Some of the more spectacular effects in Rise include the morphing of a liquid metal robot and the shattering sequences when a robot is defeated.

There are spectacular animation sequences throughout the game which will be as seamless as possible to give it more of the appearance and feel of a movie rather than a computer game.

The player controls a cyborg in battles against five types of enemy robot as well as a super-intelligent robot known as the Supervisor. Each robot is governed by its own artificial intelligence which will affect the style in which it fights.

Rise of the Robots is being developed by Mirage's in-house programming team, Instinct Design. The team, which is headed up by ex-Bitmap Brother Sean Griffiths, was formed in 1992 with a brief to develop high quality products that stretch the technical capabilities of the new CD machines.





Magic Carpet

Bullfrog

Magic Carpet is very similar to Creation in a number of ways. You are placed on a magic carpet flying over a texture-mapped 3D landscape. While flying you meet all sorts of monsters and dragons which you have to shoot.

The game is very in the style of Space Harrier, but graphics-wise is at least 100 times better. The technology used in Magic Carpet has also been used to create things like flight simulators, but Bullfrog decided against a product of this type and made a game that will be accessible to everyone.



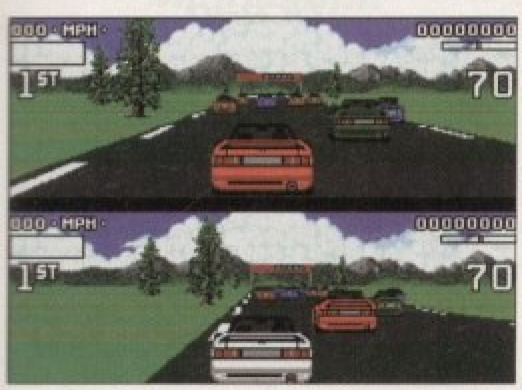
The Lotus Trilogy

Gremlin

If you were to name the best arcade racing game, then the name leaving your lips would be Lotus. The original Lotus and Gremlin deal was signed way back in June 1990.

The first game, Lotus Esprit Turbo Challenge, shipped later that year to huge critical acclaim across Europe, including the title of Arcade Game of the Year. It went on to acheieve classic status, clocking up sales in excess of 100,000 units.

The sequels followed on in yearly intervals and introduced new Lotus cars and game features, including RECS, the revoulutionary course designer system. Both titles met with similar success and the third instalment



went on to become one of Gremlin's top-selling games of 1992.

One of the best points of CD is the ability to hold so much more data than its disk counterpart. This enabled Gremlin to place all three Lotus games together on one CD. The games won't take advantage of the CD32's capabilities, but the introduction of a lick of paint (256 colours?) and maybe a CD-quality soundtrack might be a good idea for Gremlin to implement. The Lotus Trilogy should arrive on the shop shelves in November.

Inferno

Ocean

Digital Image Design's tie-up with Ocean will see the release of Inferno on the CD32. For those of you who remember Epic, Inferno was originally billed as the sequel.

The problem with Epic was that it just didn't live up to its name. If ever the game-buying public were sucked into the vacuous black hole of the hype machine, it was by Epic.

However, Inferno has certainly not been dogged by the same problems as Epic was assumed to have suffered.



Ocean are adamant that Inferno has not been rushed or left incomplete.

Ninety years after Epic's setting, Inferno stars you as a top pilot battling over forces of good and evil. The evil forces in this case are a group of nasty aliens who are interested in your skills.

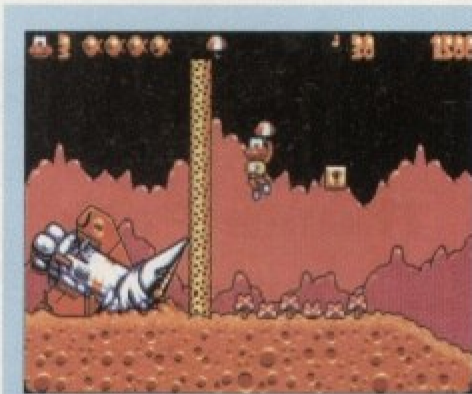
The action will take place over seven planets and three moons, but you have the freedom to explore the depths of



the universe. In total there are 130 missions to clip your wing-tips in.

Inferno has some of the sharpest 3D graphics yet seen on a console, with extremely smooth presentation of the 3D images. Inferno also features a full CD-quality soundtrack recorded by Goth belfry–rockers Alien Sex Fiend.

Also contained in the package will be a graphic novel designed by top Judge Dredd artist Sean Phillips. Ocean believe this will help set the scene and also add extra



James Pond 3

Millennium

Millennium's next release after the truly excellent Diggers will be the third instalment in the James Pond series of games. Once again our fishy chum is on the trail of the evil Dr Maybe. Operation Starfi5h is going to surprise a lot of people and will especially please Robocod fans.

The graphics are bigger and better – it's quite possibly the fastest platformer I have seen so far. The CD32 version of the game will features some tremendous cartoony graphics and an excellent jazzy CD soundtrack to boot.

James Pond 2, which was recently released on the A1200, will also be transferred to the CD32 with a few tweaks in the graphics and sound departments.



depth and a stronger element of believability.

Overall Inferno looks set to create quite a stir with its cinematic feel, large slick detailed polygons and in-depth level of play.

Creation

Bullfrog

Creation is a major departure for Bullfrog. Steering cleverly away from their collection of isometric 3D games such as Populous and Syndicate, Creation uses a first-person perspective with absolutely amazing graphics.

The game is set underwater and uses a fractal-generated aquatic landscape complete with texture-mapped 3D to create a realistic feel of depth. This mapping is all down to the CD32's planar chip which means all the stuff that can be done on a PC can be just as easily done on Commodore's new machine.

The idea for the game came from Bullfrog supremo Peter Molyneux when he went scuba diving. With

Bullfrog's games you seem to stand back from the world you're in, but with Creation you're actually part of the environment and get to swim around with the fish!

Oscar

Flair Software

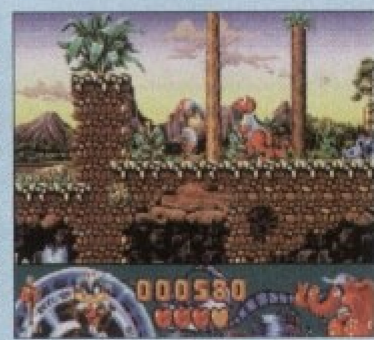
Trolls was perhaps one of the most underrated games of last year and despite getting rave reviews from the press, it didn't sell tremendously well.

Flair put their heads together to wonder why their ace little platformer hadn't sold by the bucketload and as they were about to start work on Trolls 2 they thought they'd better find out.

Apparently it was nothing to do with the quality of the game, but because Trolls was perceived to be a girl's game. As 90 per cent of the games market were male, Flair thought they'd better ditch the Trolls idea.

The Flair team went back to drawing board and came back with Oscar. The game starts at Oscar's local multiplex cinema where by some strange fate Oscar is drawn into the different movies. Cartoon Superworld, Wild West Capers, Game Show Bonanza, World War 3, The Horror Channel, Sci-Fi Encounter and, ahem, Jurassic Pranks are the films in question.

As Oscar ventures between levels he must collect miniature versions of the "real" Oscars in order to progress. To fit the game on the A1200 was a difficult task with the panel, the background and the foreground in 32 colours and the sprite in 16 colours. This created horrendous memory obstacles, but for the CD32 this won't be an issue.



The CD32 version will feature general improvements which will affect sound and graphic with digitised sequences for the front end. The general gameplay will be unchanged because Flair feel that it's as good as it can be. Oscar could well become a serious challenger to Sonic, Zool and Mario.

Theme Park

Bullfrog

Theme Park is aimed at anyone who ever dreamed of owning or running their own amusement park. Cutesy, it may be, but it's also a business simulator. Theme Park returns to Bullfrog's old adage of the isometric 3D game.

The option to build the biggest rollercoaster in the world and charge people nothing to go it is possible, but within a few days you'll go bankrupt. As well as the roller-coaster, Theme Park offers the punters a Haunted House, waltzers, a space shuttle simulator and other such eneter-taining rides. It's a very watchable game with kids smiling after they've been on the rides, or a small child sobbing becauses he's lost him mum. An original idea with some luscious 256-colour graphics and a comprehensive icon-based control system. Theme Park could well be massive.

Body Blows 2

Team 17

Yet another sequel in the offing for the CD machine. Details of this one are even sketchier, but it is scheduled for release in the early part of next year.

The A1200 version is still in the inital design stages, but you can expect the CD32 version to be similar with detailed backdrops, fast and smooth animation and terrific CD sound effects.

This and Alien Breed 2 are definites for the CD32, but Team 17 are also hoping to get Project X and Superfrog on to the CD. If it does happen you can expect enhanced graphics and sound in both games, but the software house can't confirm anything as yet.



TFX

Ocean

TFX or Tactical Fighter eXperiment puts you in the hot seat of some of the world's leading jet fighters. You are set to play a top pilot with the UN rapid–response airforce. It is set over eight theatres of war including Africa, Europe, South America, South East Asia and of course the Middle East.

Your judgement will not only sort out aerial threats from hostile nations, but will also diffuse delicate political scenarios.

Involving over 200 multiple objective missions, you also have the enviable task of selecting from jets such as the European Fighter aircraft, the F22 or the devastating F–117A Stealth fighter.

TFX utilises full Ordinance Survey maps and covers seven million kilometres of play area. All of these are liter-



ally covered with hills, roads, towns and installations all in beautiful 3D polygon splendour.

TFX is another product to come from the minds of DID (Digital Image Design), the team who brought you F–29 retaliator. Judging from the standard of early demo sequences, TFX looks to be rather special to say the least. The 3D engine is the same as used in Inferno and features a combination of polygons and texture mapping.

Apart from looking splendid visually, TFX retains a strong element of the true flight simulator, so there are no fancy gimmicks or flight patterns that the real McCoy cannot perform.

TFX is nearing completion and looks set send a sidewinder into the belly of all other flight sims.

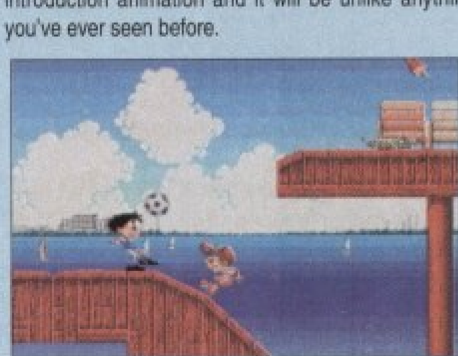
Soccer Kid

Krisalis

Reviewed in the last issue of *Amiga Computing*, the 94 per cent Gamer Gold-rated Soccer Kid is also making the transistion to Commodore's new console beater. In terms of gameplay there will be hardly any difference – it will be virtually identical to the standard A500/600 versions.

It's not known as yet whether Krisalis will overhaul the graphics and give it a 256-colour lick of paint. There will be definitely be a CD soundtrack and an extra country (Brazil) which was left out of the floppy release, to play around in. Another major feature for the CD32 is the five minutes of broadcast-quality animation at the beginning of the game.

A Japanese company has been working on the introduction animation and it will be unlike anything you've ever seen before.



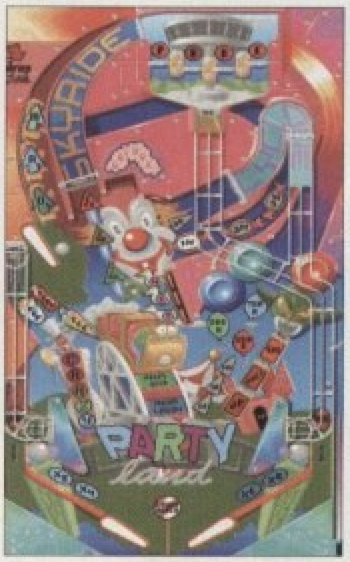
Sleepwalker

Ocean

After the success of the original Sleepwalker for Comic Relief 93 there followed a vastly improved A1200 version.

The somnambulist in question is Lee. Fortunately he has a canine carer in the shape of Ralph. He takes care of the snoozing youngster as he stumbles through dangerous situations.

A first rate combination of platform capers and tomfoolery, Sleepwalker is both playable and amusing. The CD version will be to all intents and purposes the same as the A1200 which improved the sound and graphics.



Pinball Fantasies

21st Century

Most Amiga owners will have found it a difficult task to avoid the computer press's response to Pinball Fantasies. Basically it received rave reviews with most folk confessing it was the most realistic pinball simulation ever to light up the tube on a monitor.

What you got for your money were four tables of fast scrolling, high speed flipper frolics and a true feeling that this was the closest a silicon machine could replicate a real machine.

As they say that was then, but this is now because the CD32 version is about to bounce around your screen.

The main difference of course, will be graphical. Most people thought that the original version looked sweet, but to see it resplendent with 256 colours is quite awesome.

The soundtrack has had a total re–working. A whole new set of tunes have been recorded, taking complete advantage of the CD qualities the console possesses.

The result is some literally ear shattering music, while the sound effects that come to you in four-channel stereo tilt Pinball Fantasies closer to the realms of reality.

Fans will also be pleased to hear that 21st Century's earlier effort, Pinball Dreams, is undergoing the same treatment. More exiting than this, though, is work is currently underway on Pinball Illusions. This follow up, although a good way off completion, will include a multi–ball feature and a whole set of new tricks and tables.

Liberation – Captive 2

Mindscape

Following 1990's classic award-winning Captive comes the sequel Liberation. The original was set on an off-world penal colony, with you battling it out against all manner of mechanised menace.

Liberation brings us back down to Earth in a tale of power, corruption and lies. Set in the 29th Century, you play Trill, a prisoner of conscience and an exile from Earth. This doesn't seem such a bad thing as the mighty BioCorp are bleeding the planet dry, stopping at nothing in their lust for profit.

When the corporation droids malfunction they turn killer. Instead of de–activating these droids, though, the company is blaming innocent people for the murders.

You control four of your own droids through their own windows on-screen, sending them on separate missions to exercise justice.

Liberation is huge to say the least and contains some 36,000 city locations and just over 4,000 random missions. It's not just an action adventure either, as contained in the play will be a high number of challenging puzzles to solve.

The significant aspect as far as the CD32 is concerned is the pioneering Vectomap system Mindscape have developed. It uses high resolution images in combination with fast moving vectors. Liberation also contains some outstanding superbly detailed animation sequences and is already being heralded as technically brilliant.

Alien Breed 2

Team 17

The much-awaited sequel to Alien Breed will be Team 17's first release for the CD32. Released early next year, it will be well worth the wait. Details are still sketchy, but it will feature enhanced graphics and an impressive CD soundtrack.

Syndicate

Bullfrog

Following the release of the CD32, Bullfrog decided to shelve their A1200 version and concentrate on a version for the superior machine.

The main reason for this was that the programmers found that the extra graphics and colours they'd hoped to implement on the floppy-driven machine slowed the play down to levels beyond belief.

However, the CD32 with its hi–tech bytes-to-bitplanes converter speeds everything up to the required level. This has enabled them to add the kind of features desired without losing any pace.

In the original version you were in charge of a group of psychotic cyborg agents, who armed to the silicon teeth



wrecked havoc on rival corporations with the view of world domination the ultimate goal. The CD version should include such delights that the chart topping original could never aspire to. For example, you will be able to rotate the 3D perspective to see behind buildings and other objects. Plus any building your agents enter will now be able to be viewed as a cut–out to add an extra dimension to play.

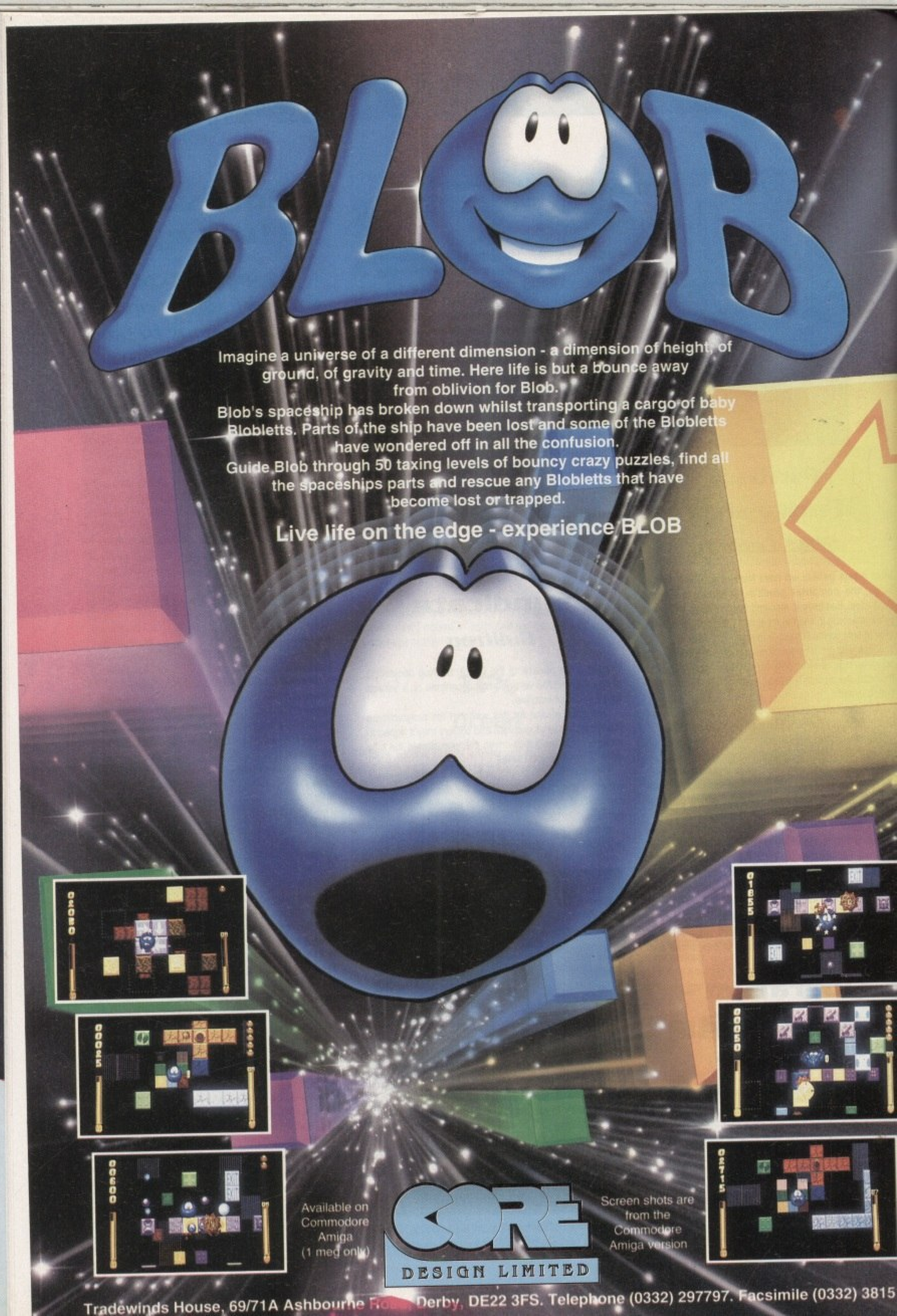
Other things which are set for release as data disks for the original version are to be included on the 32 version. These will be things such as a new range of weapons plus the ability to disguise your agents as civilians.

With enhanced graphics using the planar chip which is built into the CD32, Syndicate looks like being the kind of product to take Commodore's new baby by storm for Christmas.

Software frenzy!

A list of CD32 software either on its way or about to go into development, but don't quote me on that!

1869	Flair Software
Adventures in Time	Flair Software
Akira	Ice
Alfred Chicken	Mindscape
Alien Breed 2	Team 17
Amiga CD Football	Plattsoft
B17 Flying Fortress	Microprose
Battlestorm	Titus
Body Blows 2	Team 17
Biosphere	Electronic Arts
Burning Rubber	Ocean
Chaos Engine	Renegade
Civilization	Microprose
Creation	Bullfrog
Diggers	Millennium
Dracula	Psygnosis
Genesis	Flair Software
Grand Prix	Microprose
Gunship 2000	Microprose
Inferno	Ocean
James Pond 3	Millennium
Jurassic Park	Ocean
Lemmings	Psygnosis
Liberation: Captive 2	Mindscape
Lionheart	Thalion
Litil Divil	Gremlin
The Lotus Trilogy	Gremlin
Magic Carpet	Bullfrog
Man United Premier League Champions	Krisalis
Microcosm	Psygnosis
Mortal Kombat	Virgin
Nick Faldo's Golf	Grandslam
No Second Prize	Thalion
Oscar	Flair Software
Pinball Fantasies	21st Century Entertainment
Pinball Illusions	21st Century Entertainment
Prehistorik	Titus
Project X	Team 17
Putty	System 3
Putty 2	System 3
Rise of the Robots	Mirage
Robocod	Millennium
Ruff 'n' Tumble	Renegade
Ryder Cup Golf	Ocean
Sabre Team	Krisalis
Sensible Soccer	Renegade
Sim City	Maxis
Sleepwalker	Ocean
Soccer Kid	Krisalis
Superfrog	Team 17
Surf Ninjas	Flair Software
Syndicate	Electronic Arts
TFX	Ocean
Theme Park	Bullfrog
Uridium 2	Renegade
Whale's Voyage	Flair Software
Zool	Gremlin
Zool 2	Gremlin



BLOB
Imagine a universe of a different dimension - a dimension of height, of ground, of gravity and time. Here life is but a bounce away from oblivion for Blob.
Blob's spaceship has broken down whilst transporting a cargo of baby Blobletts. Parts of the ship have been lost and some of the Blobletts have wondered off in all the confusion.
Guide Blob through 50 taxing levels of bouncy crazy puzzles, find all the spaceships parts and rescue any Blobletts that have become lost or trapped.
Live life on the edge - experience BLOB
Available on Commodore Amiga (1 meg only)
CORE
DESIGN LIMITED
Screen shots are from the Commodore Amiga version
Tradewinds House, 69/71A Ashbourne Ro Derby, DE22 3FS. Telephone (0332) 297797. Facsimile (0332) 3815



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1511

Gamer GLOBE

In ya face. We is doin' dis funky news thang. You know what I'm sayin' (err, no - puzzled readers). Respect!

A rippin' tale

Ezra Sidran, the programming genius behind the hugely successful Universal Military Simulator (UMS) and UMS 2 has, after nearly four years of development, just announced the launch of his latest epic, Jack the Ripper.

Jack the Ripper is a heavyweight murder mystery game which simulates the events that took place in the Whitechapel and Spitalfield boroughs of London in 1888.

Like all Sidran games, Jack the Ripper is heaped with accurate information based on years of research. Every known fact, person, object and detail that have been uncovered in the 105 years since the commission of these heinous crimes have been included in the game.

Skilled pen and ink artists have been commissioned to draw reconstructions of the infamous locations and to create portraits of the unfortunate residents that lived there.

Whenever possible the artists have worked from actual photographs, maps, blueprints and contemporary descriptions.

Because the Whitechapel Murders were never solved, a number of important clues have been planted in the game so that a conclusion can now be reached. This also means that every time you run the program you may well discover a different solution to the killings.

Jack the Ripper is full of hard evidence and solid clues, there are no contrived puzzles or riddles. You'll need all your logic and skills of detection to pick up on vital clues when searching the different locations, interrogating suspects and reading up on the latest reports in the daily newspaper.

The game utilises the easy to use Graphical User Interface (GUI) which comprises movable windows, scroll bars, drop down menus and a point and click cursor controlled by a mouse.

Jack the Ripper and will be available later this year and it will be distributed in Europe through Mirage Technologies Ltd.

I hate those meeces to pieces!

Everybody's cartoon favourites Huckleberry Hound and Pixie and Dixie are about to star, for the first time, in their very own home computer games.

UK publisher Alternative Software – already famous for their wide range of children's programs and arcade favourites such as Dalek Attack – are soon to release two home computer games featuring the famous Hanna Barbera characters at the low price of £9.99. Huckleberry Hound takes centre-stage in Hollywood Capers, a colourful and highly entertaining platform game, while Mr Jinx still hates those meeces to pieces in Pixie and Dixie – the computer game.





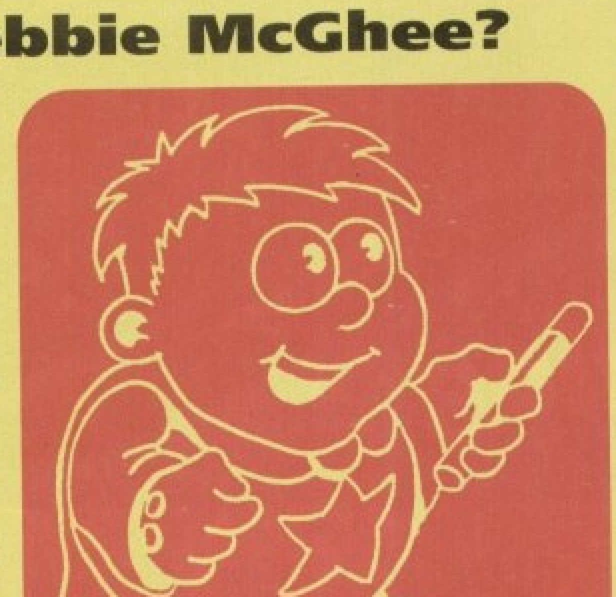
Hollywood Capers features five worlds and extra bonus levels. and includes a bouncy cartoon-style soundtrack, while Pixie and Dixie includes favourite ingredients such as hidden rooms, sub games and pick ups.

Both games are specially designed for the increasingly important four to ten-year-old age range (ideal for *Gamer* staff then – Ed) and you can expect a review very soon.

Hanna Barbera is a brand new addition to The Children's Range, which consists of a number of low-cost home computer games designed especially for this young gaming market.

It will also be one of the first to be presented in a new A5-sized slim dumpy box, a style that offers increased protection and attractive display.

Where's Debbie McGhee?



Empire are out and about on the arcade front with Magic Boy. It features a massive 96 levels split between 64 main and 32 hidden levels of superb colourful arcade action that make all other games look black and white by comparison.

You play the part of Hewlett, a young naïve and hopelessly accident-prone apprentice wizard who, while his master is away, has inadvertently released a large number of monsters.

You must guide Hewlett in search of the monsters and return them to their cages before the master wizard returns. This is not quite as easy as it sounds because some of the monsters will attempt to work their own magic and use cunningly intelligent strategies to dodge Hewlett and escape being caught.

Empire's platformer will feature four-track sampled music and sound effects. There are four different graphic styles which are wonderfully presented on a parallax scrolling background.

Magic Boy was created by the designers of the award-winning Pipe Dream and should arrive before the end of the year.

Are you ready to fly?

Digital Integration have just announced the release of an album-length CD and cassette featuring music from and inspired by the Tornado flight experience. The music was written and produced by Dominic King, David Punshon and Richard Wells.

David Punshon was commissioned by Digital Integration to provide the music for the game, and Dominic King is a prolific songwriter who has written music for the likes of Roger Daltry (ahem) and Carly Simon (oh dear) to name just two, and sound tracks for films such as Grease 2 (ha ha).

Hits included on the album are Storm by Hollywood Nights, We Can Fly By, err Fly and Are You Ready to Fly by Rozalla. The CD will cost you £10.99 while the cassette is slightly cheaper at £8.99.

The house of 'paign

Campaign was a highly successful, incredibly detailed simulation of land-based warfare in World War II. Well it's back! The wittily titled Campaign 2 is bigger, better and quite simply the military simulation of the year.

Empire have updated the system to include all the post-war vehicles with over 100 new shapes from Abrams to T72s tanks. All of the modern weapon systems such as guided missile, rockets, homing missiles, laser range-finders, gun stabilisers and night sights have been added.

Animated infantry can be deployed from personnel carriers into the battlefield. Not only can you drive all the vehicles in an improved 3D environment, but you can fly helicopters too!!

Just as in Campaign 1939-1945, several historically accurate maps are included in the package, covering many real conflicts from the last 50 years.

The real strength of Campaign 2 is in its strategy side. After long consultations with military strategists, it's emerged as the most comprehensive simulation, not just of warfare, but of the whole operation of running an army as viewed from all levels.

The second bout of campaigning will begin in October.

Call the quack!

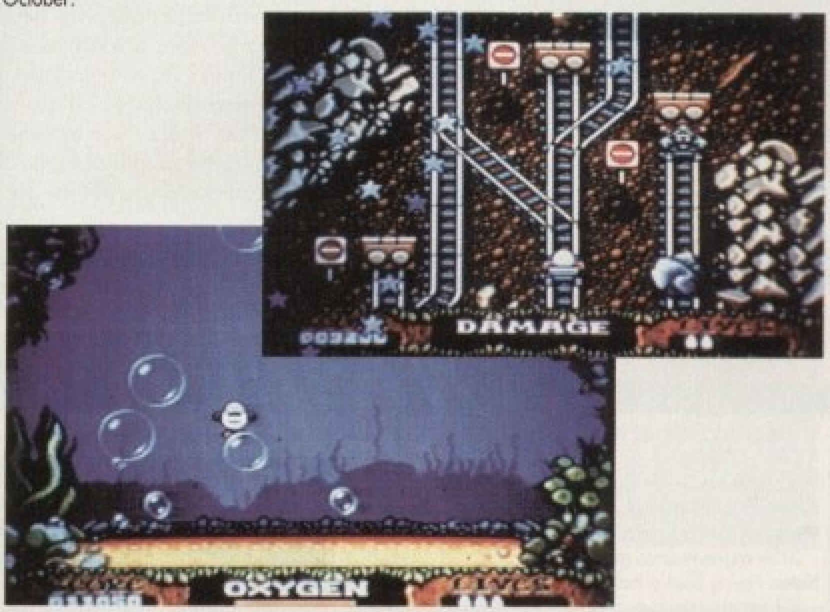
Everybody's favourite egg is back! Codemasters are not content with selling over 3 million Dizzy games across every format there is, but have decided to release yet another Dizzy adventure.

Fantastic Dizzy is billed as a huge cartoon game with an arcade feel bursting with adventure scenarios. The evil Wizard Zaks has cast a black spell over Dizzy's homeland turning all the creatures into fiends.

To top it all off, the Wizard is holding Dizzy's girlfriend captive in his mystic castle in the clouds. Dizzy has to rescue his woman (well, err egg that is), defeat Wizard Zaks, restore his homeland back to how it was and do his weekly shopping at Gateway before they shut.

Fantastic Dizzy is jam-packed with puzzles to solve. Some problems require the collection of useful objects before the solution becomes clear, and others rely on the player's skill and agility.

Codemasters have already had success with Fantastic Dizzy on the NES where it went to number one in the Gallup chart. The egg that everyone loves will put in an fantastic appearance on the Amiga in October.



Cartoon capers with a strong adventure influence

It's rally time again

Europress Software is about to launch the latest generation of virtual reality car racing games. Five years ago Europress Software, then under the moniker of Mandarin, made history with Lombard RAC Rally, the first roller coaster-type driving game. It was a massive seller at full price and a chart topper when it was later released on Ocean's Hit Squad budget label.

Now Europress Software have once more teamed up with the RAC to create a faithful representation of this year's four-day rally which starts on the November 21.

It features digitised video graphics of the route, taking in real racetracks, bleak hills, moor land and snowy Welsh forests. Gamers can test their rally skills while seated behind the wheel of a fully modified Ford Escort Cosworth, Toyota Celica and Subaru Imprezza among others.

Project Manager Richard Vanner travelled around the country filming various special stages along the route. The footage has resulted in different road textures like gravel, tarmac and mud being accurately reproduced, together with roadside features like trees, log, actual rally road signs, marshalls and of course spectators. The effect of these digitised graphics is startling and really has to be seen to be believed.

Rally will be launched in November for the Amiga. The game will be 1Mb and compatible with all Amigas, but only A1200 and A4000 owners will be able to take advantage of the special 256-colour mode.

INNARDS

It's meaty, beaty, big 'n bouncy

REVIEWS • REVIEWS • REVIEWS

REGULARS • REGULARS • REGULARS

Ever fancied playing Quantum Leap with 80 years of flight technology? Well, now's your chance to take part in the noble art of the Dogfight



Now and again something is released for the Amiga that quite simply is too complicated for us mere mortals at Gamer Towers to handle.

In this case it's Dogfight and with a name like that, it doesn't come as much of a shock to discover that it's the latest release from the kings, neigh gods of the simulation racket, MicroProse.

Billed as absolutely huge by their PR-type sausage Jason "Take That" Dutton, we felt that reviewing this product should be handled by someone who has both respect and experience from the flying and buying public.

So it's a great honour for me to hand you over to flight simulation's greatest stunt and fighter pilot Spunky Plusfours, who we now join on the runway.

"Well hello, It's your resident fighter ace, good old Spunky here, who today sits before you at the controls of one of my all time fave kits, the bally Sopworth Camel.

"Before we go any further I should just like to say a big hello and cuddles to Ginger and Chalky who I know will be in the mess room of our club right now enjoying a bit of a tipple."

"Anyway, you join me in glorious sunshine with blue cloudless skies, so it should be a spiffing flight with some super rough and tumble against me old arch rival the baron. I shall now taxi down the tarmac and get my kite off terra firma."

So saying, Spunky guns the engine on his beloved Sopworth and waits for the crackle of the ignition, and finally the propeller jumps into life.

Minutes later, Spunky is airborne. Teeth gritted, flying helmet in place, scarf flowing and moustache perfectly groomed, Spunky launches into his best Raymond Baxter-type air show narrative:

"The Camel has the glorious distinction of having destroyed more enemy craft than any other

The dirty dozen

The Sopworth Camel

Type: Single seat bi–plane fighter, escort and light bomber
Performance: 170kmh/13,000ft ceiling
Weapons: Twin .303in Vickers machine guns generating 200rpm
Notes: A fearsome fighter in its day with great turning finesse and also very cheap to repair and manufacture.



MkII Supermarine Spitfire

Type: Single seat, single engine fixed wing fighter
Performance: 590kmh
Weapons: Eight wing mounted .303 machine guns, each capable of 1200rpm
Notes: The prototype was winner of the Schneider Trophy air race in 1929. Following typical government indecision it wasn't until the inevitability of war that the Spitfire went into production. Its principle role was to take out fighter escorts and it remained in production throughout the whole of World War II



The Fokker DR1

Type: Single seat triplane fighter
Performance: 166kmh/14,000ft ceiling
Weapons: Twin .312 MG08/15 machine guns at about 600rpm
Notes: The Red Barons' favourite plane, it has great manoeuvrability despite early setbacks.



Messerschmitt Bf109E

Type: Single seat, single engine fixed wing fighter
Performance: 570kmh/34,450ft ceiling
Weapons: Two wing mounted 20mm MGFF cannon and two .312in engine mounted machine guns
Notes: Having filled a multi role in the Spanish Civil War, the 109 become immensely popular. At the outbreak of WW2 the Messerschmitt became the principle bomber support fighter. Pound for pound it matched the Spifire and Hurricane, but was superior in the dive.



F-86 Sabre

Type: Single seater fighter bomber
Performance: 1,091kmh/45,000ft ceiling
Weapons: Six M–3 machine guns at 1250rpm
Notes: Following the demise of the propeller, in 1949 the first F–86 appeared. Different to other early jets it employed swept wing technology, which allowed it cross the sound barrier. Most active in Korea, once rockets were introduced it become the first modern jet fighter.



Mikoyan–Gurevich MiG–15

Type: Single seat fighter
Performance: 1,075kmh/51,000ft ceiling
Weapons: One 37mm cannon and one 23mm nose cannon
Notes: After the fall of Berlin and the captured rocket technology the race was on to develop jet fighters. The MiG–15 was flying by 1947 and saw active service in Korea. Panic set in when the MiG appeared as it used swept wing technology and easily outclassed the straight-winged jets of the US.

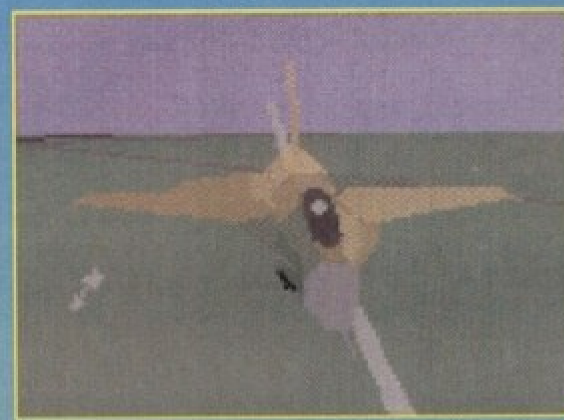




Pick a mission on the main menu



Select a war zone and choose your fate


Just another one of the many views of your F-16

GAMER GOLD

combat plane. I myself have been responsible for a good many of them I can tell you. Developed in 1916 it is capable of 170km/h and can climb to a... I say what the bally nora's that?"

Spunky's questions are soon answered as a glistening metallic dart booms past his wooden flying machine rocking it to its very fabric. The noise is tremendous as Spunky's gritted teeth and steely eyes turn to a look of absolute astonishment.

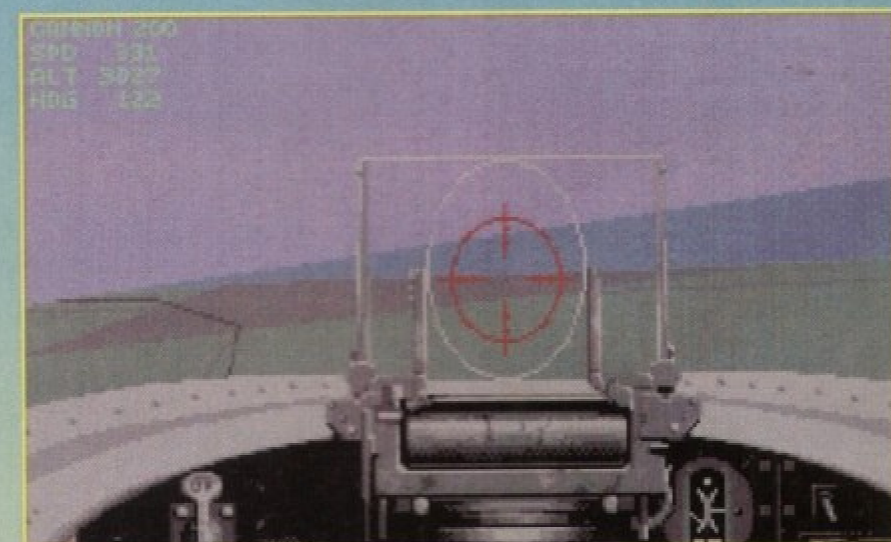
"What the blooming hell is that? A spaceship? What's going on air traffic control? Am I supposed to take on that wretched contraption? Where's the bloomin' Fokkers... Don't say El Barony is in that thing?"Before Spunky can ask any more of the many questions that are swimming around his confused brain, he notices in his rear view mirror a rather ominous sight. Said unidentified craft is on his tail and closing at an incredible rate of knots.

As Spunky attempts to outmanoeuvre the craft "as only a wily fox of his calibre can, he notices something that stops him in his tracks.

"Cor blimey, that silly sausage is letting off fireworks at..."

But before he can finish this rather premature and foolish statement, three metres of the finest US hardware, the AIM-9L Sidewinder laser-guided missile, have snaked into the rump of Spunky's ill-begotten fuselage.

There then follows a real firework display as bits of Spunky and the Camel descend earthwards to rapturous applause and cries of "Bravo!" from

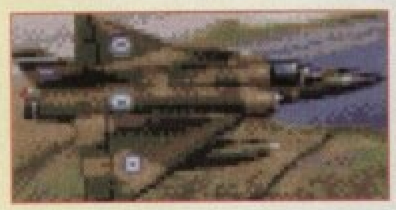

Left a bit... right a bit... left a bit... It's the golden shot!

McDonnell Douglas F-4J Phantom II



Type: Twin seat all-weather interceptor
Performance: 1,500kmh/60,000ft ceiling
Weapons: One 20mm Vulcan six-barrel machine gun. Four belly mounted AIM-7 Sparrow air to air missiles. Four AIM-9 sidewinder air-to-air missiles. 18 x 130mm Zuni rockets. Four AGM Maverick ground-to-air missiles.
Notes: Following the hysteria generated by the Mig-15 (normal US policy) the F-4 was introduced. Undergoing a variety of changes it gave Soviet pilots a hell of a shock in Vietnam, and even now refuses to retire from active service.

Dassault Breguet Mirage IIIE



Type: Single-seat multi-role fighter bomber
Performance: 2,350kmh/can reach 36,000ft in three minutes
Weapons: Two 30mm 5-52 cannon. One Matra R.530 Radar/homing AAM. Two R550 Magic AAM. 18/36 Matra RL F2 rockets.
Notes: The Mirage in all its forms is without a doubt one of the most successful fighters since WWII. It was the first to reach Mach 2 in level flight yet cost remarkably little to manufacture. It was these that Argentina used to dogfight the Harriers of the Royal Navy during the Falklands conflict.

MiG-21 Fishbed



Type: Single seat daytime fighter
Performance: 2070kmh/59,050ft ceiling
Weapons: One 30mm under belly cannon. Two/four K-13 Atoll air-to-air missiles. Two/four AATO air-to-air missiles.
Notes: Frequent opponent of the Phantom, the MiG-21 has a Mach 2 capability and was an excellent combat aircraft. It is faster, more manoeuvrable, better armed than its US counterpart and a third of the price.

General Dynamics F-16A Fighting Falcon



Type: Single seat fighter bomber
Performance: 2,090kmh/60,000ft ceiling
Weapons: One 20mm M-61 multi-barrel machine gun. Four AIM-9 sidewinders. Four AGM-65 Maverick missiles. 18 Mk4 FFAR Rockets
Notes: Designed largely as a successor to the ageing Starfighter, it soon became apparent that the Falcon was also worthy of taking over from the Phantom. The F-16 has amazing manoeuvrability and at the time of its introduction could out fly anything in the World. In fact, it can even better the awesomely powerful MiG-25.

British Aerospace Sea Harrier FRS1



Type: Single seat ship based multi-role V/STOL fighter/bomber
Performance: 1,586kmh/over 50,000ft ceiling
Weapons: Twin 30mm Aden cannon in ventral packs. Two/four AIM-9 Sidewinders. 18/36 SNEB 68 rockets
Notes: Developed in a time when it was anticipated that one of the first casualties of war would be the runway, the Harrier with its Vertical/Short Take Off and Landing capabilities took care of this problem. Although much slower than most of its counterparts, there is nothing that comes close to it for manoeuvrability. This fact was proven in the Falklands when it was used to great effect against the underrated Argentine airforce.

MiG-23 Flogger B



Type: Single seat all weather interceptor
Performance: 2,445kmh/55,000ft ceiling
Weapons: One 23mm twin barrel machine gun. Two/Four AA-8 Aphid missiles. Two AATO Advanced Atoll. Two AS7 kerry and 12 57mm ground attack missiles
Notes: During the '60s most Air Forces came to the conclusion that the multi-role aircraft was the way forward. The US unveiled the F-111 with its variable geometry wings, however due to financial and design problems the F-111 was never the success it was intended to be.

A pilot's tale



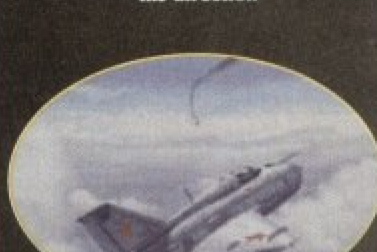
Meet Spunky Plusfour's entrepid airman from WWI. Here we see Spunky keeping his eyes peeled for the enemy



Oh, no silly Spunky! that's not his plane, that's a Fokker



Meanwhile unbeknown to Spunky, top ace Chuck Spudwater roars in and releases a full load in his direction



A direct hit! Chuck looks on as Spunky spirals into a nose dive



The plane explodes, but far from there being bits of Spunky everywhere, the lucky blighter bails out and floats to earth



the ground crew.

Well, not all of Spunky has been recovered as yet, but we're reliably informed that he will live to fly another simulator soon – after all, he is only a computer-generated character and you can't hurt them for very long.

Anyway, Spunky's endeavours beautifully illustrate the whole concept of Dogfight, which is to allow you to engage in aerial combat in a range of jets and planes which span an era of 80 years.

The first thing to be said is that Dogfight marks a departure for MicroProse. For the first time they've swung away from the accuracy angle which they've made their benchmark, and developed a more thrills-and-spills fun simulator.

INTO ACTION

In Dogfight you are presented with three main options which decide what type of flight of fancy you are going to take part in.

The first choice for you to deliberate over is whether to engage in Duel Mode. This is possibly the quickest way to get airborne and taste air combat.

In Duel Mode you are provided with a choice of six historical eras and two typical opposing craft from that time. You can for example, choose to be – like Spunky – and take on the Hun in your Sopworth Camel.

Alternatively, career forward in time and re-enact the Falkland War or the Syrian conflict in more modern jets like the Harrier or the F-16.

The other smart thing about Duel Mode is that you can start your flight at varying mid-air tactical positions, so it serves as fine practice for all the rookies.

The next option for your perusal is the What If? mode. This option allows you to engage in combat to the death in aircraft from different times. This means you can pit your wits against a MiG–21 from the 50s in a World War II Spitfire.

In all there are 12 different planes for you to experiment with and you're not just limited to a one-on-one confrontation. Once you start to get to grips with controlling the planes and gain confidence, you can take on up to five enemy craft at the same time.

The other option for you to scratch your chin over is where on earth you are going to carry out your aerial fracas. You can choose from seven different worldwide hot-spots including Vietnam, Korea and of course the hottest spottiest of them all, the Middle East.

As if that wasn't enough, there's yet another option which is actually the very core of Dogfight. The Mission option allows you to enact full-blown scenarios from all of the conflicts previously described.

In this option you also have the choice of deciding what type of mission to embark upon. Perhaps you'd like to patrol around the Dover coast defending our shores from the might of the German Luftwaffe? Conversely you may prefer the blood and thunder of a search and destroy raid deep in the Korean jungle.

GREAT RANGE

Overall it's very hard not to be impressed with Dogfight. It's absolutely huge in proportions and initially there'll be plenty to keep you occupied.

With the number of missions to choose from and the variety of scenarios to enjoy, I'm not sure whether you'll ever need another flying game.

Graphically Dogfight is good. The planes have quite a lot of detail about them and even feature such luxuries as wing markings. The only sacrifice I noticed was in the ground detail, but on the whole this does not affect Dogfight's playability.

On the whole the planes move accurately as you'd expect them to. As usual with MicroProse, the horizontal screen updates are quick and smooth and give an impression of flight.

There are also some nice little extra touches that make Dogfight that little bit sweeter to play. For one you get more enough external angles and zoom facilities to muck about with. On Dogfight, however, you can also exercise this whim on your parachuting pilot as he floats to the ground.

Another nice touch is when you fly at the sun you suffer sun blindness and the screen goes white as you lose vision. Add the customary configuration screen, the normal phone book size manual, and a modem link up for head to heads, and you've quite a lot of simulator.

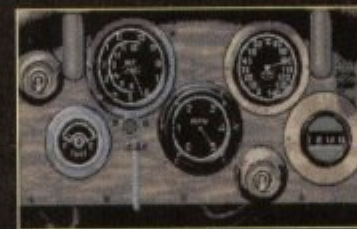
Dogfight may not find too many friends within the purist flight simulator club because of a few short-cuts MicroProse have taken to make it more playable.

For example, the majority of jets have different head-up displays; for ease of use these have been standardised.

However, if you're not too bothered about slight artistic licence and want to enjoy a very fine flight simulator that's full to the brim with excitement and action, then Dogfight's definitely the one for you.

Simon Clays

Let's have a sit in yer cockpit



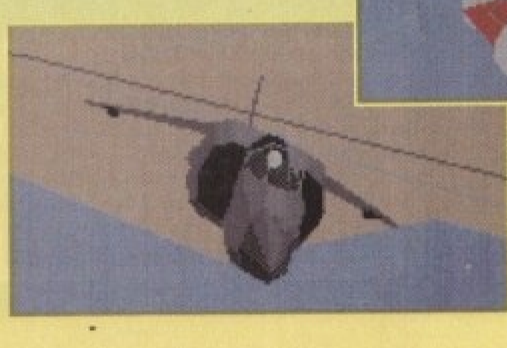
This is the old cockpit. Notice the walnut and leather finish. Relax in the splendour of the Chesterfield seat while glancing over the classically-styled clocks, before giving your jewel-encrusted stick a good pull



This is the new rock-a-doodle-cockpit. This model comes with air-bag, and lots of useless Ford dials like Turbo-boost, stereo that jams your tape in forever and a holder that automatically turns your tape into The best of Queen after a week



Take a quantum leap back in time and become that butch chappie the Red Baron



A Harrier cruises over a blue zig-zaggy bit

VISION
GGGGGGGG●●

AUDIO
GGGGGGG●●●

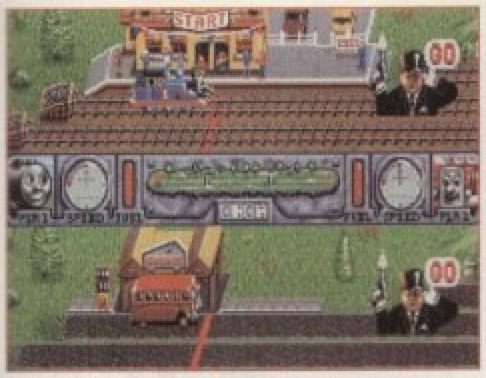
DIFFICULTY
GGGGGGGG●●

LASTABILITY
GGGGGGGG●●

90%

Dogfight is a frolicking flight of fancy for aces all over the world. Slick graphics coupled up with immense gameplay will make this a must for combat flying addicts.

Publisher ➤ Microprose
Developer ➤ In-House
Disks ➤ 3
Price ➤ £34.99
HD Install ➤ Yes
Size ➤ 1 meg



The start of the race and Thomas is pitted against the extraordinary talents of Bertie the Bus who, unlike his real-life counterparts, is on time



Percy races around the bonus stages and is about to zoom into lead when he collects that last letter

THOMAS THE TANK ENGINE 2

Chuffing good race 'em up fun arrives in your local station from the careful hand of Alternative Software. Ringo Starr not included!

Excuse me if I boast and be self-indulgent for a couple of paragraphs, but there are number of loves in my life and one of those which applies to this review is children's television.

If I could sit at home all day and watch kid's TV I would become the happiest man on Earth. Postman Pat, Bertha, Fireman Sam, Dangermouse, Portland Bill, Sesame Street, Rugrats, Scooby Doo, The Flintstones... just a selection of my favourite programmes.

Thomas the Tank Engine is a whole different kettle of fish. If it was on and I wasn't doing anything then I'd watch it, but within a couple of minutes I'll start channel hopping and trying to find something more substantial.

Just my luck this month then to get a game about the only children's favourite that I don't particularly like. For starters, It had Ringo Starr as the narrator, which was a major mistake, and for some bizarre reason it always seemed to be aimed at upper class kiddies. Oh well, such is life!

GAMER GOLD

Before, you carry on reading I must point out that this particular product is part of Alternative Software's Children's Range and is aimed at kids aged between 3 and 8. More mature readers can now turn the page, but interested parents and those who still behave like children should read on.

The story behind the game is a tale of unbridled macho boasting and bragging. The issue all started when Thomas entered into the station and feeling fairly happy and confident uttered the immortal words: "I'm a really useful engine!".

That constitutes bragging where I come from and Gordon – the Large Green Engine – also noticed this and challenged Thomas. "Oh yes" puffed Gordon in a very sarcastic tone, "But I bet you're not as fast as me".

This started a major argument which was littered with obscene and offensive comments swinging to and fro between each engine. Bertie the Bus just laughed at the two, but the Fat Controller overheard the commotion and decided to put a stop to it at once. He shouted to the argumentative Engines "We'll soon see who is the fastest. I will hold a racing competition and keep times with my pocket watch, then we'll know who is the best." The two feisty trains began revving their engines in readiness for the race.

This dear reader is where you come in; the outcome of the race is all down to your skills as a rampant games player. There is a choice of up to seven engines (Thomas, Percy, Gordon, Bill, Toby, James and Ben) and a bus (Bertie).

The option of racing against the computer or a friend is entirely up to you, but it helps a lot if you have a couple of chums to play against. You are presented with a horizontally split screen which scrolls from left to right. The first one past the finishing line wins. Simple? Well, not quite that simple because all the rail signals must be obeyed, otherwise the Fat Controller will make you wait while he tells you off.

If you crash into obstructions and other engines you will waste a few seconds of precious time. You'll also lose time if you travel down dead ends and you'll also sacrifice some water which slowly runs out as you progress through the race.

If you run out of water you will lose the race, so filling up is one of your main priorities. There are several water pumps where you can stop to fill up. Your water gauge will show you how much you have and warns you when you are getting low by flashing. In each race, there is a bonus stage in the form of a short-cut that will only let one player through. The first to reach the flashing lights at the entrance to the bonus stage will be allowed to enter.

The bonus stage is completed by collecting the five letters that spell the word "Bonus". Once finished the player will re-join the race some distance further along the track. That is basically all there is to know about Thomas 2 because it is an incredibly basic game. That's a good point though because it's easy to play and a whole lot of fun to boot. I'm not exactly a tot, but I really and truly enjoyed playing Alternative's train/race-'em-up.

The graphics are impressive with brilliant reproductions of Thomas and all his chums. Soundwise there is an accurate rendition of the theme music from the TV show and plenty of sound effects throughout.

Thomas 2 sounds and looks terrific. It's highly playable and is great fun. It's very hard to knock Alternative's latest, but I'm in a bit of a quandary. I could give it anything between 70 and 90 per cent.

If you're aged between three and eight then you're going to love it, but if you're older you won't find much to keep you going because it is so basic, although the two-player mode is strangely addictive if you've got an insane friend to play it with.

Technically it's brilliant, but it isn't going to appeal to everyone. As it is specifically aimed at the younger market I'm going to give it 90 per cent. Remember it is only £9.99 and you do get great value for your money.

JONATHAN MADDOCK



The Fat Controller gives Gordon a ticking off for going through a signal when he wasn't meant to. Naughty engine!



James stops at a water pump for a quick fill up and takes time to admire the beautiful countryside



Category	Rating
VISION	8/10
AUDIO	9/10
DIFFICULTY	5/10
LASTABILITY	9/10

For younger gamers this is the ideal product. Excellent graphics and sound coupled with good playability factor make Thomas 2 a highly enjoyable game.

90%

Publisher	Alternative Software
Developer	In house
Disks	1
Price	£9.99
HD Install	n/a
Size	1 meg

F17 Challenge





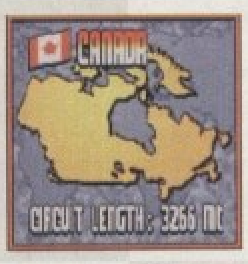














It's time to pull on your helmet, grapple with your gearstick and screech away from the lights in your best boy racer-type spin

Racing games seem to get pumped into the face of the buying public these days like so much exhaust emission pouring into the atmosphere.

Everybody parades around thinking that another one won't hurt, when really we've almost reached complete saturation point. Let's meander down the metaphorical track of the tired Formula 1 licence for a moment. Look how many titles are currently racing for contention for the pole position of number one motor racing experience.

Vroom, F–1 Grand Prix and Super Monaco GP are just three of the relative oldies to grace the grid. Agreed they're to all intents and purposes classics, but weren't they enough to put the rival factions off?

It seems not, because just recently a pack of new titles have weaved their turbo-charged selves onto your shelves. Mr whinging Brummy himself, Nigel Mansell, took time out from making even more loot to lend his name to a Formula 1 title.

Then there's Domark's F1; this has the official backing of the F.I.A. which should give it some extra revs.

With the big names and licences being banded around you wouldn't think there'd be much space on the track for another competitor.

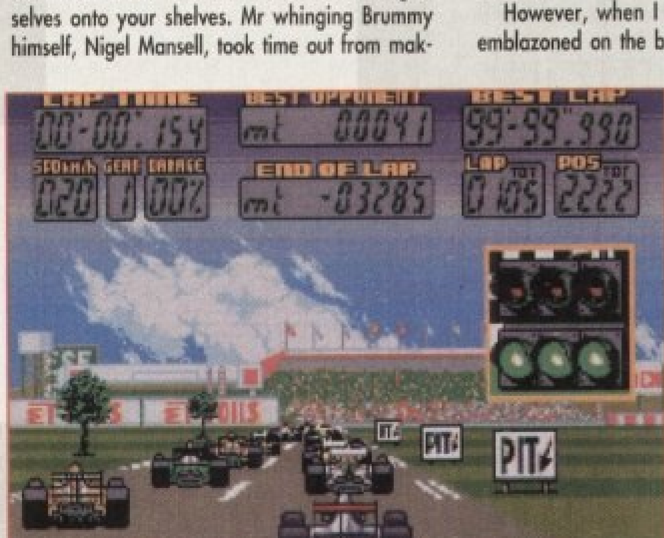
ASTONISHMENT

So when another Formula 1-style title screeched its way into the office, it was greeted with both astonishment and a certain amount of contempt.

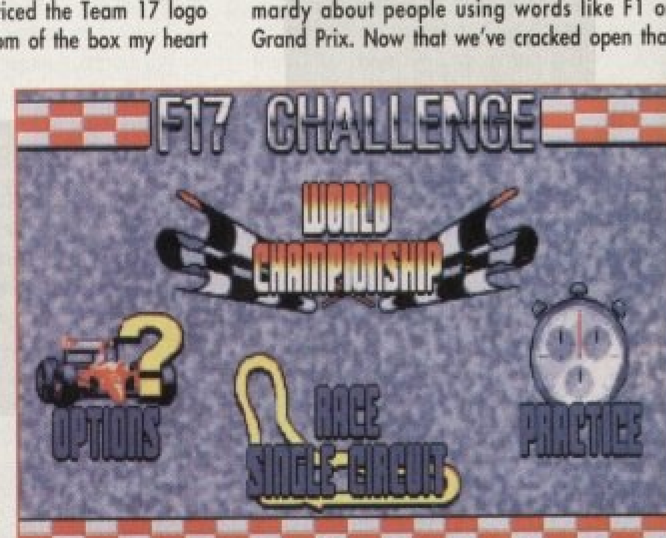
However, when I noticed the Team 17 logo emblazoned on the bottom of the box my heart became filled with sunshine. Could the company that wowed us with the likes of Project X, Superfrog, Alien Breed and most recently Body Blows do it again?

Well what with the recession and all the, company refused to buy me a sexy Marlboro racing suit, so reluctantly I stretched into my undersized Admiral tracky bottoms, slipped on my oven gloves, strapped up my colander and set out to road-test Team 17's new title.

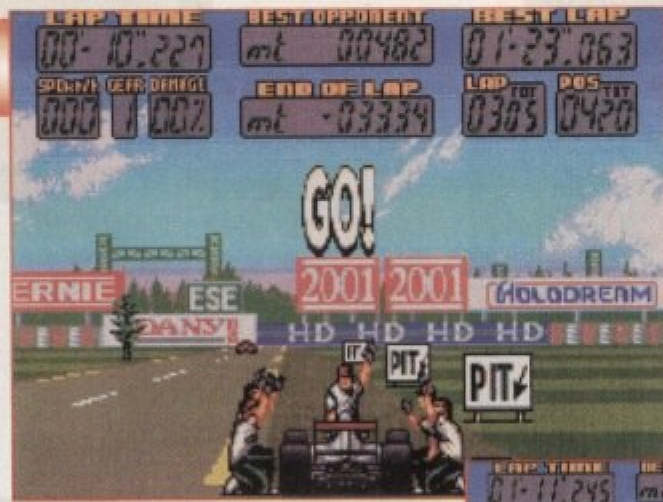
First query is why the devil is it called F17 and not F1 like all the others? Well, it's apparently because FUJI and the FIA have decided to get mardy about people using words like F1 or Grand Prix. Now that we've cracked open that



Always the same – go out anywhere on a Sunday and you get stuck behind some senile fool in a Williams Honda



Here's the menu. For starters you might fancy a little sautéed options, washed down with a fruity practice, followed by the full championship



You can't get quicker than a Kwik-Fit fitter – especially if you want your exhaust to fall off half-way around the track

little piston rod, let's find out about the nuts and bolts of Challenge. Remarkably enough, 17 puts you in control of one of four racing cars over all of the world's toughest circuits. The ultimate aim, like all racers, is to become the world champ.

That, to all intents and purposes, is that; most racers follow the same recipe, because that's what the likes of our Damon do for a living. So there are no real surprises on that front.

However, and I am jumping the green light here a little, but things need saying now, before you condemn F17 as "just another racer". For one it's brilliant, and secondly it only costs the best part of £13!

When most products float around the £25 to £40 mark, you are guaranteed a quality product for just a fraction of the cost. In terms of its features, F17 holds its own against its more costly competitors from the same stable. Choice of car, varying levels of ability from rookie through to pro and interchangeable control systems are just the press of a throttle away.

CHAMPIONSHIP

Once you're out there in the cockpit there are more decisions to make. You can opt for practice laps or play arcade-style three-lap races which challenge you to finish in the top six to qualify for the next circuit. Alternatively you can take part in qualifying to determine your place on the grid in the full-blown championship.

There's also wet weather to contend with, and damage inflicted on your car by driver error or other mean machines affects your performance.

A nice touch here is that when your little brum–brum takes dents to the paint-work you can pit in. The longer you stay in the pit, the better the repair job you get.

All these things are really nice features but above all the outstanding quality of F17 is playability. Pure, unadulterated, arcade playability. Challenge absolutely oozes out of the side of the disk drive.

The screen update is positively rapid and your car moves at a terrific rate. Everything graphical from backdrops to your car is very well drawn and animated.

When the finish line has been finally crossed, it has to be said that Team 17 have come up with a winner. Everything about this game is just brilliant – it looks good, sounds good and plays as well as any arcade racer I've yet seen.

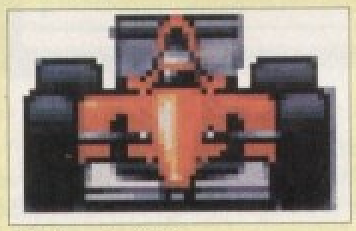
Do yourself a favour, buy Challenge, have hours of tyre screeching fun and save a dollop of dosh at the same time. Awesome.

SIMON CLAYS

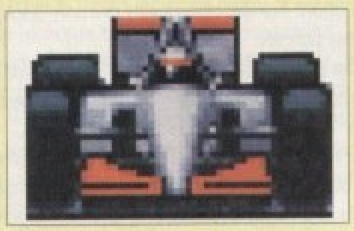


Ahh, this is the life. Weave my way through the Monaco hairpin, park up at the casino, have a dabble and I might even go gambling

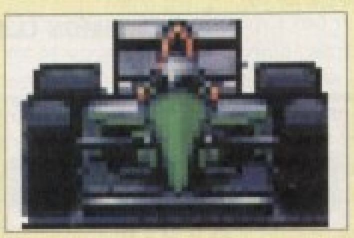
Things that make you go Brrmmm



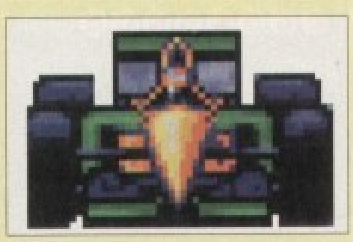
This is a nice little runner, powerful engine, very fast in a straight line and a lovely red paint job



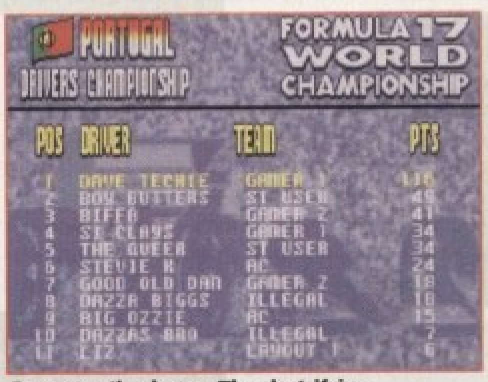
Very reliable red and white stallion which reaches its best even during wet weather



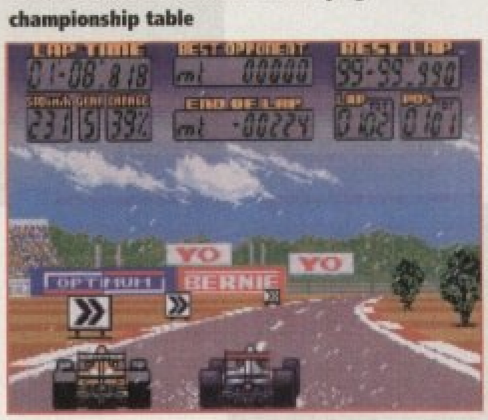
A beefy rascal with a big throbber under the bonnet, granting it a strong structure for difficult tracks



A demon of a racer! A fast car for a fast type of dude



Scores on the doors...The electrifying championship table



In F17 it never rains but it pours

VISION
●●●●●●●●●○

AUDIO
●●●●●●●●○○

DIFFICULTY
●●●●●●●○○○

LASTABILITY
●●●●●●●●○○

Team 17 do it again, with brilliant Formula 1 frolics in the fast lane. Highly playable and a must for those who enjoy spraying champagne over everybody from the winners' rostrum.

90%

Publisher ➤ Team 17
Developer ➤ Holodream
Disks ➤ 2
Price ➤ £12.99
HD Install ➤ No
Size ➤ 1 meg









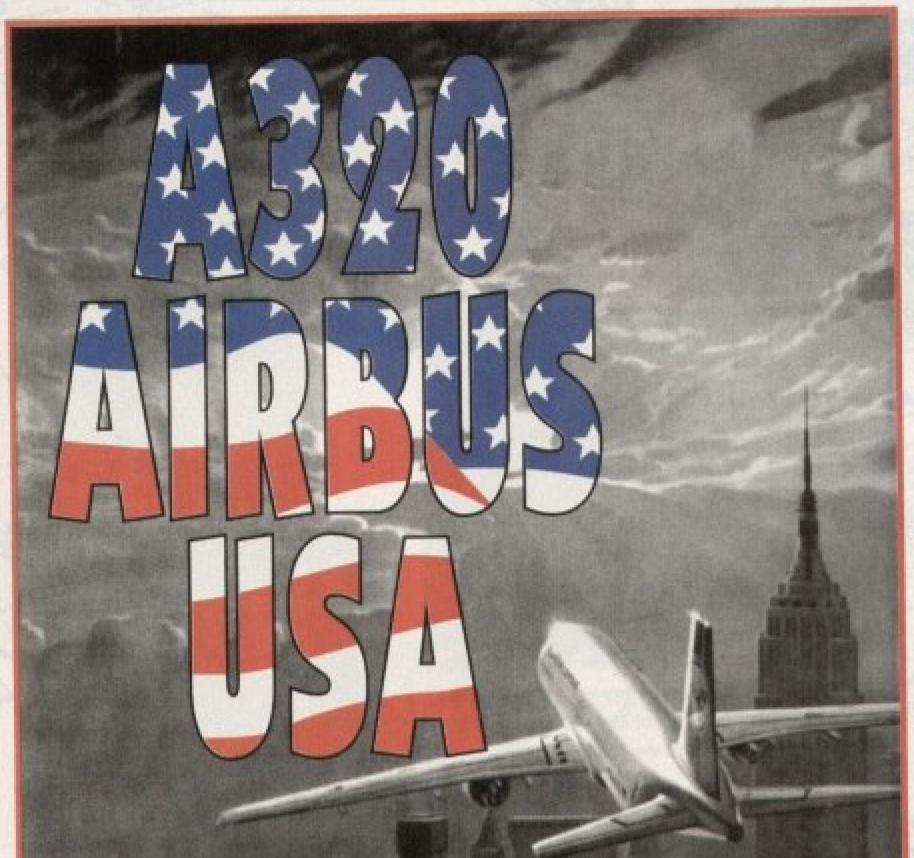












The plane now departing on Runway 49 is full to the brim of lager louts and anaemic totty. Join us in the cockpit to see if we make it

The very mention of A320 Airbus sends a shiver down the spine and the mind spiralling back to the days of the package holiday.

Arriving at the airport some three days before your two-in-the-morning, cheap-rate flight is due for takeoff, you queue with a herd of other revellers all mooing with excitement over the prospect of sun and fun on the Costa.

After waiting some three hours in a fly-infested baggage check-in behind the enormous Mrs Mankey, her three jammy-faced sprogs, her sombrero and her 13 suitcases which are full to the brim of mosquito repellent and diarrhoea cures, you finally hand your bags in.

Once you've collected your tickets, the caring ground-crew cattle prod you towards the departure lounge where you set up camp for the remainder of the time. Living on a diet of insipid coffee and stale sandwiches, you count the hours until your flight is called.

As the time counts down an air of expectancy fills the room. With only 30 minutes till boarding an announcement booms over the tannoy telling you that due to Spanish air traffic control the flight has been delayed a further two months.

Finally however, it's time to board. After the mad rush, 200 sweaty carcasses are settled in their seats anticipating their stale food, copious amounts of lager and a good opportunity to goose and verbally abuse the hostesses.

Fortunately Airbus has very little to do with the passengers on domestic flights. Instead it concerns itself with the serious business of safely commuting people from airport to airport in the United States at the helm of a state-of-the-art modern airliner.

Unlike many flight sims (especially military ones) designers Thalion have concentrated on making A320 as realistic as possible. In fact, on opening the box one finds a host of technical manuals and a complete set of charts.

On first glance this may seem daunting to many, so a training mode has been implemented which gives you the opportunity to select your own weather and destinations.

In full flight mode the met office supply weather and cloud ceiling, then it's up to you to decide the amount of fuel and the number of passengers you wish to carry. These are not irrelevant questions either, because they affect the way your Airbus will handle.

Once this has been decided it's into the cockpit and time for take off. To get off the ground you must follow the correct procedure, as everything about A320 is laid out like the real thing and must be implemented at the right time.

Once in the air, unless it's a very short across town flight you must use your trusty charts and beacon system – this could take some time.

The beacons help you to navigate by sending out a signal which lets you determine how far you are from your next point of reference.

This process is repeated until it's time for landing. This time you must use more hi-tech wizardry, in the shape of the ILS – Instrument Landing System.

This works on the a similar basis to the beacons, except it tells you whether you are too low, too high or left or right of the runway.

When you have completed your flight (tangled wreckage or intact) the computer works out a performance rating. This is based on such things as speed, heading and remaining fuel.

As you get more proficient and progress in rank, so the flights get more complicated and difficult. For example, less facilities from the auto-pilot are available and no automatic ILS are allowed.

A320 has been designed with realism in mind, so fancy graphics and gimmicks are out of the hold doors. For example, towns are only displayed as grey patches.

The main differences between its older brother European Airbus are an improved control system, better sound and slightly enhanced graphics.

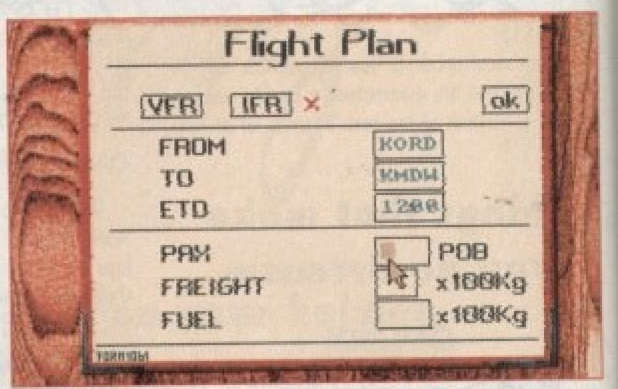
Even though Airbus will take a lot of mastering and patience it can get rather tedious on long haul flights. But it does succeed in providing gamers with a truly realistic simulation.

So if you've had your beady eye on the look out for an accurate sim, Thalion's A320 is definitely the one for you.

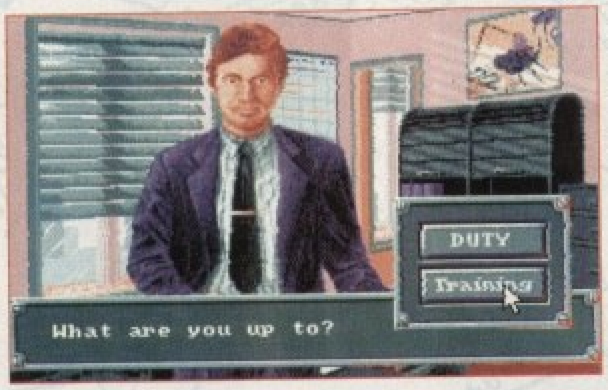
SIMON CLAYS



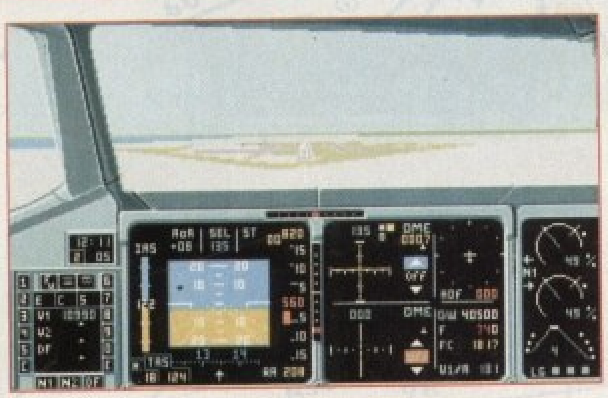
Oh dear, I appear to have miscalculated in my approach to Manchester Airport and landed on the M6... Ah well, Knutsford services here I come!



Before the flight it's that all important planning stage



After a long flight the last person you want to bump into in the de-briefing room is Richie Benaud



Ooh, it's a lovely day for a flight... hey you can see my house out of the front window!

VISION — 7/10

AUDIO — 7/10

DIFFICULTY — 8/10

LASTABILITY — 8/10

80%

A320 might not be everyone's cup of mid-flight de-caff, but if you've always fancied slipping into a nice blue uniform (not the hostesses!) then the sky's the limit.

Publisher ➤	Thalion
Developer ➤	In house
Disks ➤	1
Price ➤	£35.99
HD Install ➤	yes
Size ➤	1 meg

Here's a game that's hard to classify! It could be a platformer or it could be a puzzler. So, that means it's either a platformer with puzzle elements to it or a puzzler with platform elements to it! Hmm, I still haven't made my mind up.

To be totally honest, it would be better all-round if I could just create a new style of game just for the purpose of this review. Hey, let's do that right now. Blob is a puzzform game, err or should that be platzler? Oh dear...

Originality these days is hard to find. I mean, put your self in the position of a games designer and try to come up with an entirely new game that hasn't ever been done before. Trust me, it's a pretty hard job.

Blob is a mixture between platform and puzzle fun, but Core Design have literally come up with a whole new dimension of gaming. Instead of moving vertically or horizontally, the game comes right out of the screen at you.

The actual surprise of this new dimension is very pleasant indeed and Blob looks like a whole new lease of life in the sometimes stagnant puzzle/platform games sector.

FRANTIC FUN

The star of the game is a blue bouncing ball who incidentally looks too much like Putty for my liking. The object is to make your way through 50 levels of fast, frantic, bouncy puzzform (I thought I'd go with my first idea) fun.

What you have to do to complete the levels kind of depends on which level you're on. Sometimes you might just have to find an exit, others you might have to collect miniature Blobs, or bounce on certain platforms to make them change colour.

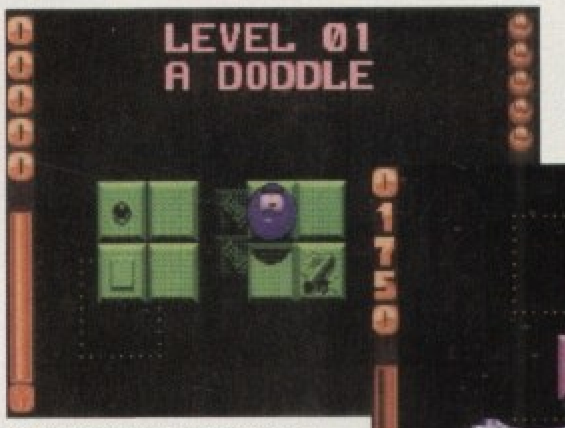
If you look at the screenshots on this page you're probably thinking that Blob doesn't look too good – well, that's only because the game doesn't need fancy graphics. You also miss the feeling of being able to see Blob move which is one, if not the most important parts of the game.

On the sound front there is a wonderful array of tunes to tease your earlobes. In fact, Blob probably contains some of the best music for this type of game I've heard in quite a while.

Blob does require plenty of practice and you'd better not have a quick temper otherwise I see plenty of gamers throwing their monitors out of the window in true rock god stylee.

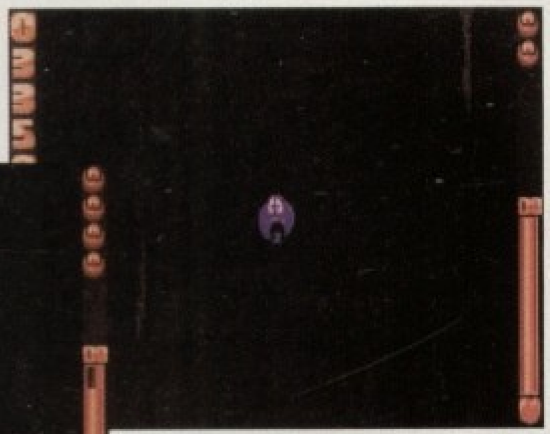
I have a mean temper and god only knows what kept me from smashing my whole estate up in unbridled anger and frustration due to not being able to complete a level.

This isn't simply because I'm crap, but because Blob is just too hard. No, wrong choice of words, it's not all hard, it's the control system that lets you down more than anything. For instance, I completed the second level first go, but when I went back to it a few hours later I couldn't get bloody anywhere and had to put my head in a bucket of cold water for a couple of minutes just to cool my anger. There is, thankfully, a password system, so once you've completed a level you'll never have to visit it ever again. I was expecting so much more from Blob and I didn't get it. The graphics and animation are really nice, the sound is terrific, the puzzles are just about right, the addiction level leaves you wanting just one more go, but Blob just doesn't have that final element to make it a classic puzzform (wahey, it could catch on) game. Blob needed to be a lot more playable than it actually is. It may have had a new, refreshing, original dimension to it, but there is nothing worse than a piece of software that is just so frustrating that you don't feel like playing it any more.



It's the first level and Blob is all pumped up and ready to bounce along into puzzform merriment!

Hey, own up! Who said that Blob wasn't visually stimulating? Err, yes, umm, bye



All that bouncing must give you a right headache! Lucky for our blobby that a series of first-aid kits are positioned nearby



It's bouncy! It's boingy! It's, err sproingy? It's Core Design's latest and it introduces a brand new dimension of games playing

It could've been so much better and I could have ridden off into the sunset with it, but it just wasn't to be.

If you want a really tough puzzform game and you like this sort of thing then it might be your cup of tea, but for those with tempers please be careful and think twice before buying.

Jonathan Maddock

VISION

AUDIO

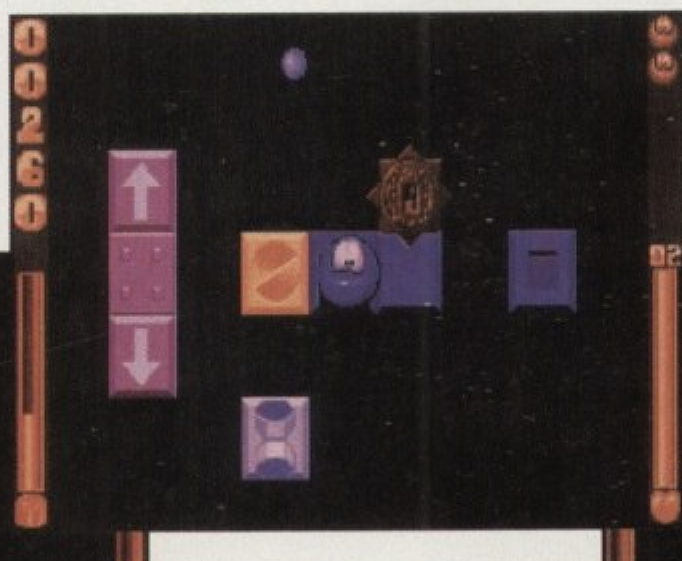
DIFFICULTY

LASTABILITY

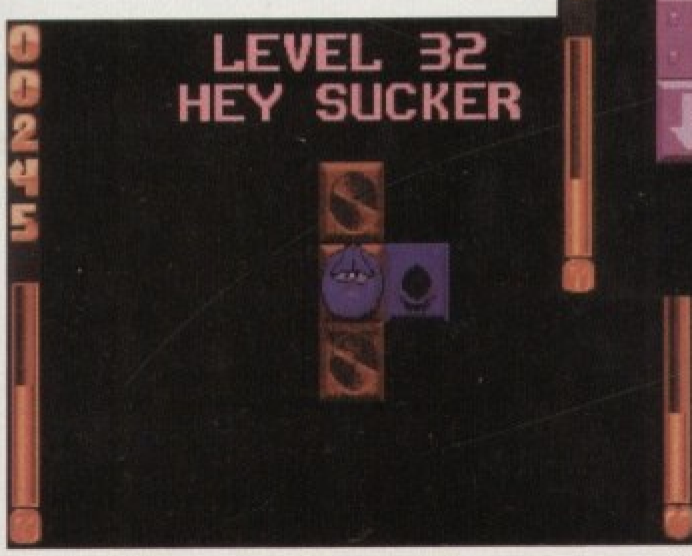
70%

Blob may have the graphics, sound and originality, but it lacks in playability thanks to the control system, and the difficulty level is way too high. Right ideas, just badly implemented.

Publisher ➤	Core Design
Developer ➤	In-house
Disks ➤	1
Price ➤	£25.99
HD Install ➤	No
Size ➤	1 meg

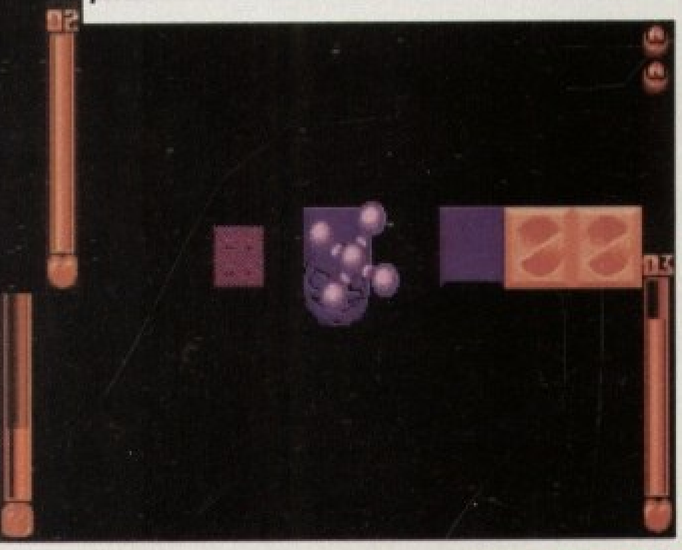


Blob has to get to the platform with the arrows on, but there is a fan and a spinny thing in his way. Answers on a postcard to...



Hey sucker! What kind of comment is that? Abuse from a game I don't need, thank you very much

One of the best things about Core Design's puzzform creation is the music. So, it's a shame you can't hear it!



Psygnosis are back! This time with an RPG that contains a bigger death count than your average Arnold Scwarzenegger movies. Lights, camera, action!

HIRED

To cheer you all up I'm going to talk about death. Specifically about death in computer games. Whichever piece of software you choose to spend playing you can count on there being a bit of death in it.

Now before we carry on, let's make a little pact. Make sure your parents are not in the room while you're reading this and also promise never ever to let them read this review. If you're a parent and you are reading your kid's magazine then put it down and go and watch Gardener's World. Thank you.

Normally you wouldn't be able to walk out in the street and start shooting people, but via the magic of your home computer your fantasy can at least be tasted and acted out. I don't condone violence in any way, but I can still say that I don't mind playing games with it in.

Some of the best selling products of all time have been incredibly violent. Operation Wolf, Operation Thunderbolt, Moonstone, Elvira 2 and Syndicate all have more than their fair share of death and violence contained within. Even cutesy games are violent!

OK, so there is no blood to be seen, but from the inside of your cutesy, wide-eyed, happy-go-lucky character is a promising mixture of Charles Manson/Charles Bronson/Hannibal Lecter and almost everybody that starred in Reservoir Dogs.

Violence is fun! Err, but only in games you understand. I don't want you lot running about the streets causing panic and mayhem by turning into dribbling psychos.

Hired Guns is violent and death is around virtually every corner. For instance, after you've loaded up the game and selected what needs to be selected, your team of four adventurers are faced with what looks like a bunch of harmless puppy dogs (similar to the one out of the Andrex advert).

Your first thought is "ahhh", but wait ten seconds and your next thought will be unprintable. They set upon your team with astounding energy and try to kill everyone in and out of sight. If you stayed still for just one minute it would be game over.

Nestling in your warm and eager mitts is a machine gun. It's fully loaded and ready to fire.



Select four adventurers from the hardest men, women and robots that have ever walked the Eart

A doubt crosses your mind as you playfully finger the trigger and you think about the soppy Andrex advert with the dewy-eyed dog.

Feelings of power spread across your whole body and you blast that little fluffy ball into oblivion. Blood flies all over the place.

That's when you suddenly think "Yeaaahhh!". OK, shooting innocent puppy dogs may not be very humane, but Hired Guns brings the psycho out of you and this is all just after a couple of minutes' play!

Right, my stress levels are going through the roof at this moment, so let's sit back, be calm and serene and take a look at a Psygnosis' product that is about to change the RPG genre as we know it.

The first thing you have to do in Hired Guns is choose a squad of adventurers. You get to select four from a collection of 12. There are a couple of robots slapped in there along with the baddest, meanest, downright scary humans ever to walk the Earth.

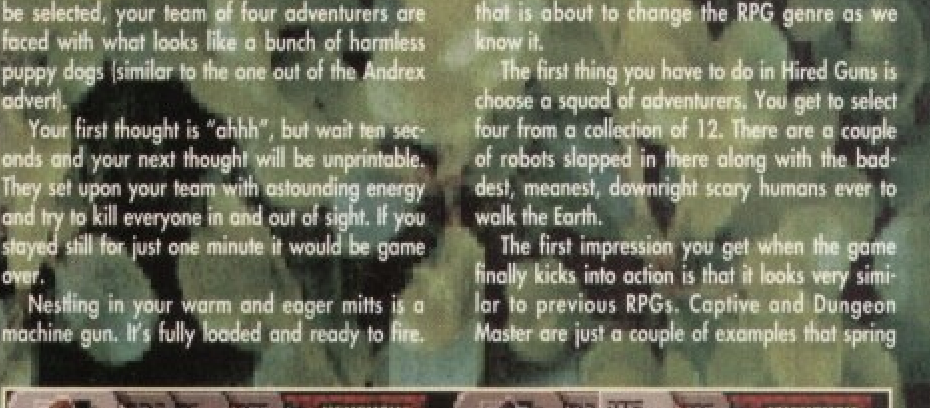
The first impression you get when the game finally kicks into action is that it looks very similar to previous RPGs. Captive and Dungeon Master are just a couple of examples that spring to mind. The main screen is split into equal quarters; one for each of the members on your team. If you decide to play Hired Guns with a friend, you will each get two team members to control. If you've got the necessary equipment for a four-player mode, you will only have one team member to worry about.

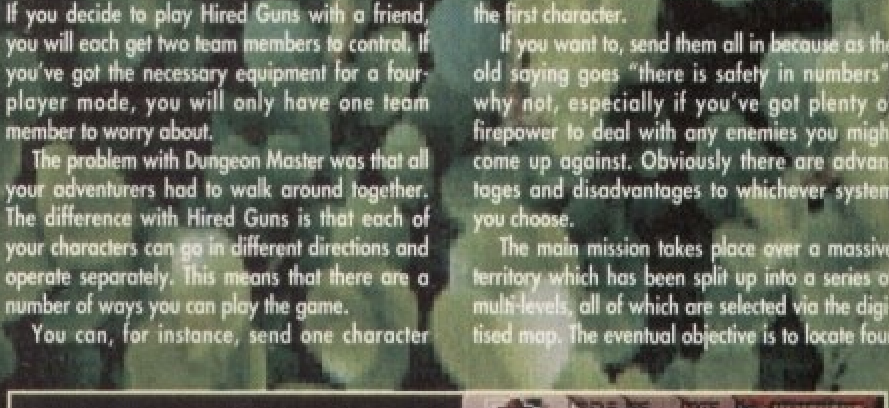
The problem with Dungeon Master was that all your adventurers had to walk around together. The difference with Hired Guns is that each of your characters can go in different directions and operate separately. This means that there are a number of ways you can play the game.

You can, for instance, send one character ahead to check for traps and take a good look around the area or send in another one to cover the first character.

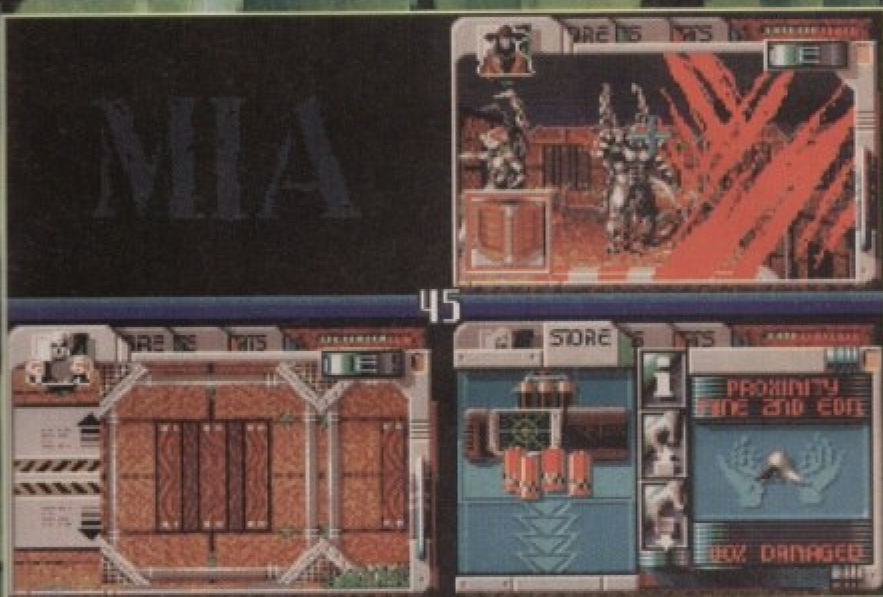
If you want to, send them all in because as the old saying goes "there is safety in numbers", why not, especially if you've got plenty of firepower to deal with any enemies you might come up against. Obviously there are advantages and disadvantages to whichever system you choose.

The main mission takes place over a massive territory which has been split up into a series of multi-levels, all of which are selected via the digitised map. The eventual objective is to locate four

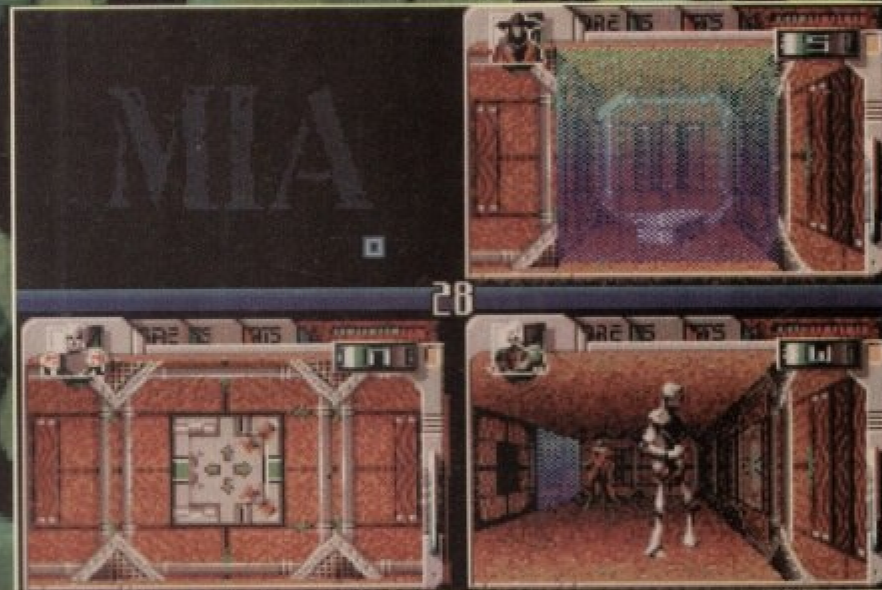

Right, you better use some Andrex to clear that little mess up. Soaks up more blood than any other known brand!



Everyone looks on in shock and horror as one part of the team is turned into blood 'n' bones



This part is very reminiscent of Aliens. One of the team takes on a bunch of viscous beasties – note the pods in the background



There is a handy box of equipment contained behind that flashing wall, but how do you get in? Well, that switch on the wall might do something

GUNS

fusion power core rings which can then be used to trigger a thermonuclear explosion and supposedly destroy an entire planet – don't ask why, it's just another one of those wacky game scenarios that you'll forget as soon as you load the product up.

Liberally strewn all over the planet are boxes that contain various bits of equipment including key-cards which are essential if you want to progress through the mission.

Among the key-cards are other bits of equipment like guns, medi-kits, lasers, flame throwers, stunners and mini-guns. Put it this way – it's more than enough firepower to keep the A-Team happy for one episode!

Each character's quarter of the screen is very similar to a data-card filing system. If you are confused about what I mean then take a gander at the screenshots! Each screen can be selected by clicking on the title of the card. The first card is the game screen where you can see all the action happening. The second is the store card where you, umm store all your objects and equipment. You can discard, pick up or get information on the objects just by clicking on the relevant icons.

The next is the DTS card which is basically a map which lets you know your whereabouts the level, but unfortunately doesn't tell you where your team-mates or enemies are.

Last, but not least is the stats card which tells you information about your character (name, sex, species, job). It also keeps track of your fitness, physique, agility and experience levels as well as how much weight you are carrying.

Control is via either mouse, keyboard or joystick. The best and easiest option is to use the mouse. When you place the pointer on the screen, depending where it is, a direction arrow will appear.

Clicking once will take your character(s) in that desired direction. Moving the pointer to the middle of the screen will give you the option of either targeting an enemy or picking up some vital equipment.

Although you can play out the whole thing from start to finish, there is also the option to have a "quick" go. If you've got things to do and people to see, you can select a short mission where you have to complete it in a limited amount of time.

The game is billed as an RPG, but is in fact so much more than that. At various points you'll be wasting away so many enemies that you'd be forgiven if you thought you were playing Operation Wolf.

Hired Guns simply oozes class and style. From the highly impressive music and delightful interlace graphics you are whisked away to an incredibly exciting and atmospheric RPG with suicidal shoot-'em-up tendencies.

It's great fun as a one player, but Psygnosis' latest adventure really enters into its element when another player is asked to join in. There is an excellent level of difficulty and because the game is big it'll keep you entertained for a long time to come.

DMA Design have injected a breath of new life into a stale genre and created an absolute corker of a product. Depending on how many people take to it, it could well become a classic.

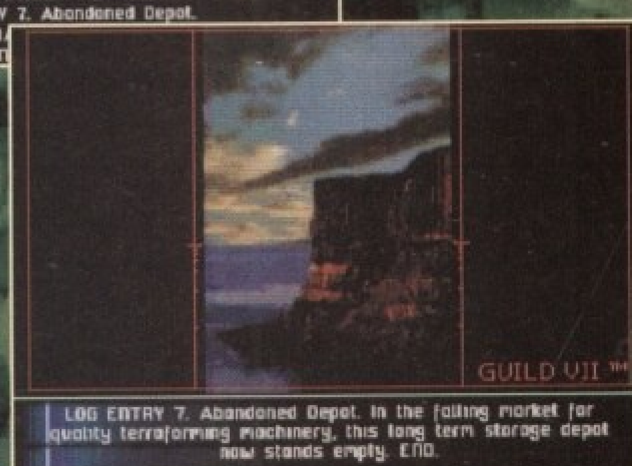
JONATHAN MADDOCK



Here is the Digital Terrain Processor. Err, it's what normal people would call a digitised Ordnance Survey map!



Another one bites the dust! Our brave team of adventurers are unceremoniously split in half



Before you enter each level, you are presented with a brilliant picture of your surroundings

VISION 9/10

AUDIO 9/10

DIFFICULTY 8/10

LASTABILITY 9/10

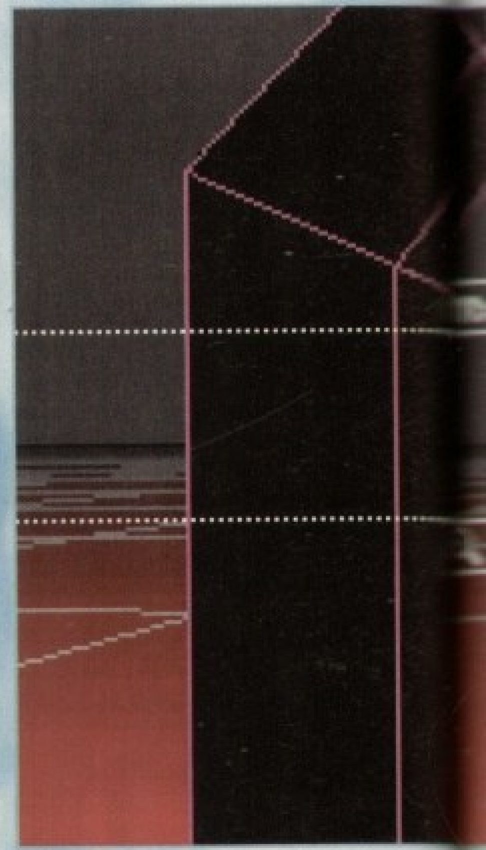
91%

Hired Guns is an RPG with a difference. Sumptuous graphics and sound complement the astounding gameplay that'll keep most gamers entertained for months.

Publisher ➤	Psygnosis
Developer ➤	DMA Designs
Disks ➤	5
Price ➤	£29.99
HD Install ➤	Yes
Size ➤	1 meg

ON THE Drawingboard 1

You may be thinking life in the '90s is frantic. Empire are about to put that all into perspective with Cyberspace. Simon Clays interfaces with his combat software and enters the ethereal world of the cyberzone network



Expand your mind and enter the world of the Cybernet

Since the dawn of time man has pondered over his future. From the moment the apocalypse was predicted in the Bible, so mankind has striven to achieve this notion.

Writers too have very often have been pre-occupied with this vision of Armageddon. Normally the trend lies with the current world economy and balance of power.

We only have to examine the totalitarian worlds of Huxley and Orwell from the '40s to see a futuristic mirror image of communism and fascism.

During the "never had it so good" '50s and promiscuous '60s the science-fiction future painted optimistic pictures. Writers like Asimov and Arthur C Clarke gave us visions of a golden age of Aquarius where people existed at one with their artificial environment, gazing up at glass domed skies.

However, in 1984 *Neuromancer*, written by William Gibson, took the top off the proverbial domed lid of the golden future. Writers like Philip K Dick with *Do Androids Dream of Electric Sheep* and Walter Williams with *Hardwired* also painted a similar picture. Films followed with directors like Ridley Scott turning words into pictures in the much celebrated *Bladerunner*. Other films with the same underlying ideas such as *Mad Max* and *Tron* became popular.

In doing so a new term was born: Cyberpunk.

CYBERSPACE

So popular was the book that soon an RPG game was launched. Due to the success of the dice-oriented table-top, Empire are about to launch Cyberspace.

But, to those of us uninitiates, what is Cyberpunk? In this shape of things to come the glass domes remain but gone are the grey lifestyles of Airstrip 1 and along comes a vibrant pulsating existence.

KEY ELEMENTS

Their world oozes activity from the cellars to the high rises. Paradoxically, because cities are inhabited by so many people, the value of human life is cheap.

Cyberpunk existence is a style defined by two key elements. The first is man's overwhelming day to day interaction with technology. In their world, computers are as common as washing machines and they don't break down all the time when you get your pants jammed in them. Because of this, sometimes the dividing line between man and machine is somewhat hazy.

For example, if your brain were put inside a mechanical body, would you still be human? Conversely, is an artificially intelligent computer alive?

The second element found in the Cyberpunk worlds is that of struggle. Basically Cyberspace is divided into two groups – the haves and the have nots. As per usual, those with power wish to keep it, those without want to get it.

The setting for Cyberspace is cruel. The year is 2090, governments are in a state of chaotic collapse, drug abuse is rife and the massive corporations repress.

Man has developed Cyber system which has allowed him to enhance a wide range of artificial implants. Cyberspace however, is just in its infancy. Cyberspace is a realm where a man's consciousness can travel and interact with others.

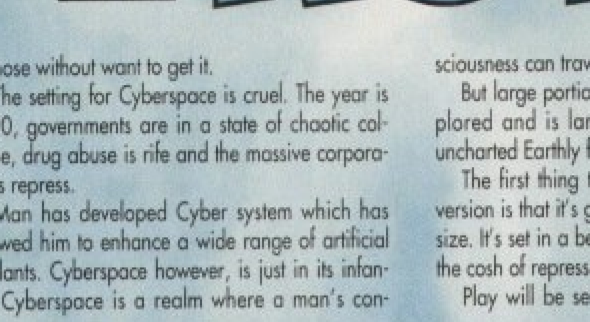
But large portions of the cybernet remain unexplored and is largely regarded as man's only uncharted Earthly frontier.

The first thing to say about the computer conversion is that it's going to be absolutely massive in size. It's set in a beleaguered San Francisco, under the cosh of repression discussed previously.

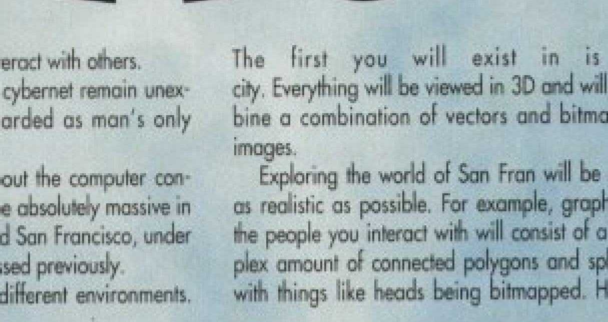
Play will be set in two different environments. The first you will exist in is the city. Everything will be viewed in 3D and will combine a combination of vectors and bitmapped images.

Exploring the world of San Fran will be made as realistic as possible. For example, graphically the people you interact with will consist of a complex amount of connected polygons and spheres, with things like heads being bitmapped. Having

The Gamer guide to pub culture in Cyberspace

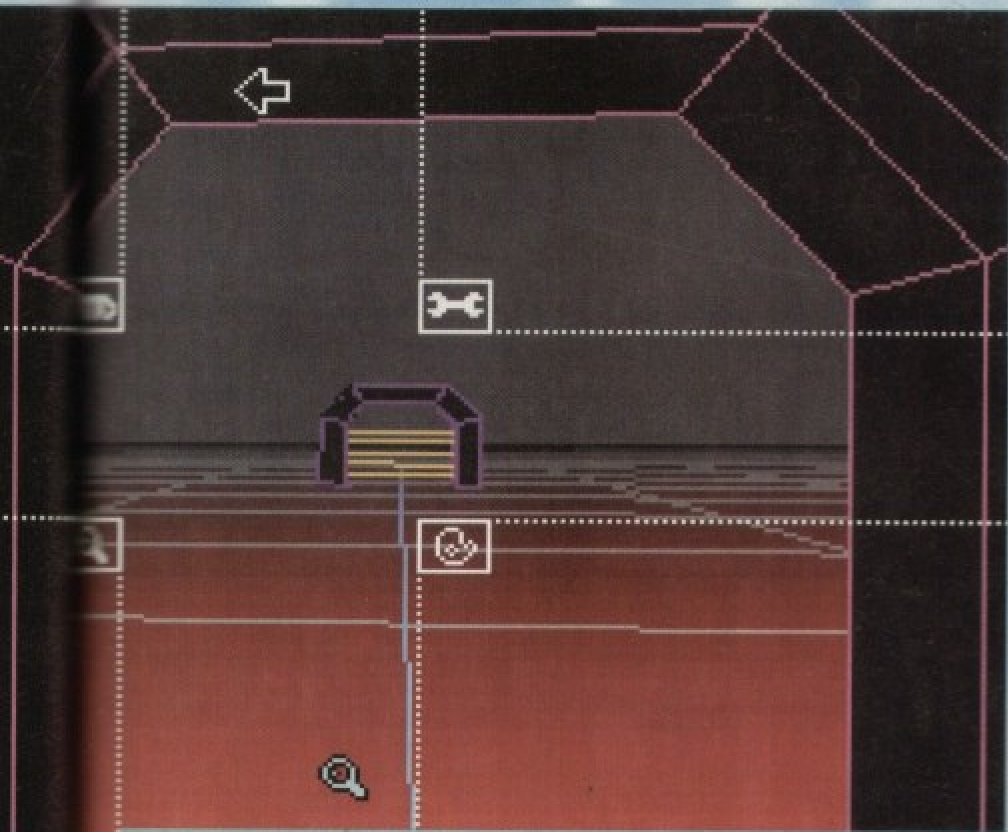


"By gum... I'm thirsty. I think I'll get me a wee drinky."



"Eh. barkeep... a pint of Boddies please"

Barkeep: "Sorry mate, Don't serve Hulk/ Arnie combos in this establishment."

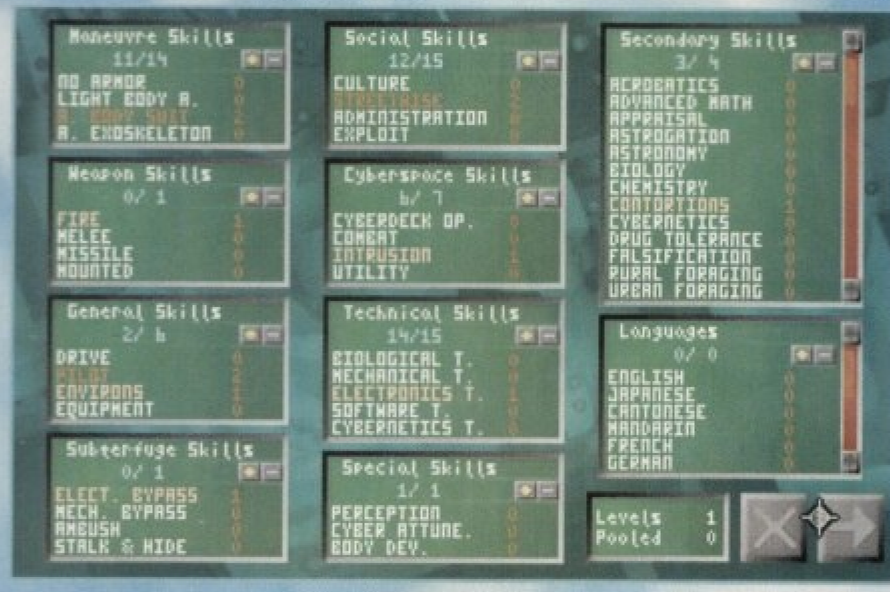




And finally, give your narcotic menace a nice mohican and some tight pants



Design your own custom character of the future. For instance become Mr N Junky and be totally addicted to Cyberspace.



Once you've decided on a profession, it's time to check out those characteristics on your drug-addled punk fiend from the future

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seen some early demos of Cyberspace, it has to be said that a high degree of realism has been achieved.

This will be further enhanced by the fact that every person in the world of Cyberspace has his or her own identity. This will be mainly decided by their social class and everyone is assigned a letter to describe their order in society.

For example, N-class citizens are unemployed and are forced to exist in large, run-down apartment blocks.

There will also be inter-relationships between the occupants of the city. However, for a relationship to be active the assumption will be made that the participants co-habit. Also featured will be dependants like children and senior citizens.

Control of play will be via a head-up display which overlays the view screen, involving four main icons which will be of primary concern to the player.

The first icon control will be an information gathering control. Clicking your mouse on objects while in this mode will give the player information on the subject in question.

There will also be inventory icons where players can pick up and drop items, and use the items picked up.

The other place to be featured will be the cyberspace zone, where people of the future interact using their minds. The cyberzone is an ethereal realm of electronic espionage in which netheads – people who use the zone frequently – do battle.

This zone will be displayed in line graphics to provide a sufficiently different environment to the city.

While you will be able basically to roam where you want to, both in the city and the cybernet, Cyberspace definitely will have a plot you must roughly follow. At the moment Empire are being very cagey about the overall plot and sub-missions but it's fair to say that it should be fairly involved with a lot of locations to explore.

DOG EAT DOG

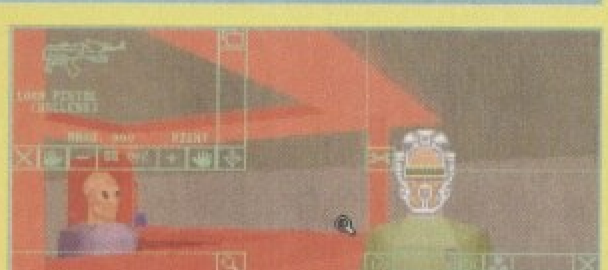
From what has been shown in a demo version, Cyberspace has an extremely cinematic feel to it. There's a great deal of realism and interacting with the people of San Fran is very realistic.

Whether you be breaking lifelike into someone's apartment or just having a drink in a bar, Cyberspace will make the characters respond in a very life-like manner.

Overall Cyberspace looks as though it's going to be very big with science-fiction lovers and role-playing freaks alike. So, if adventuring in a dog eat dog world of technology mixed with espionage and murder is your bag and you've always wanted to emulate Harrison Ford, watch out for Cyberspace coming to a software emporium near you soon...



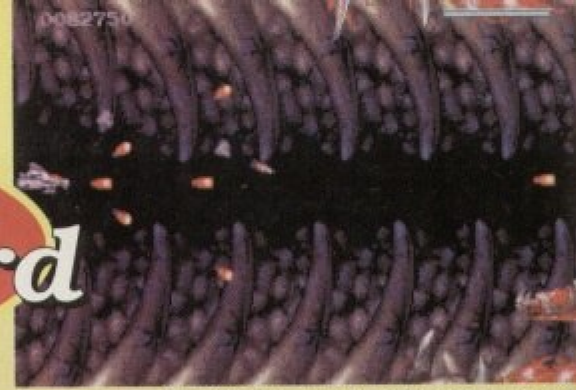
"Hmph! I don't wanna drink in yer crummy bar... I'm off to rip some trousers apart and growl!"



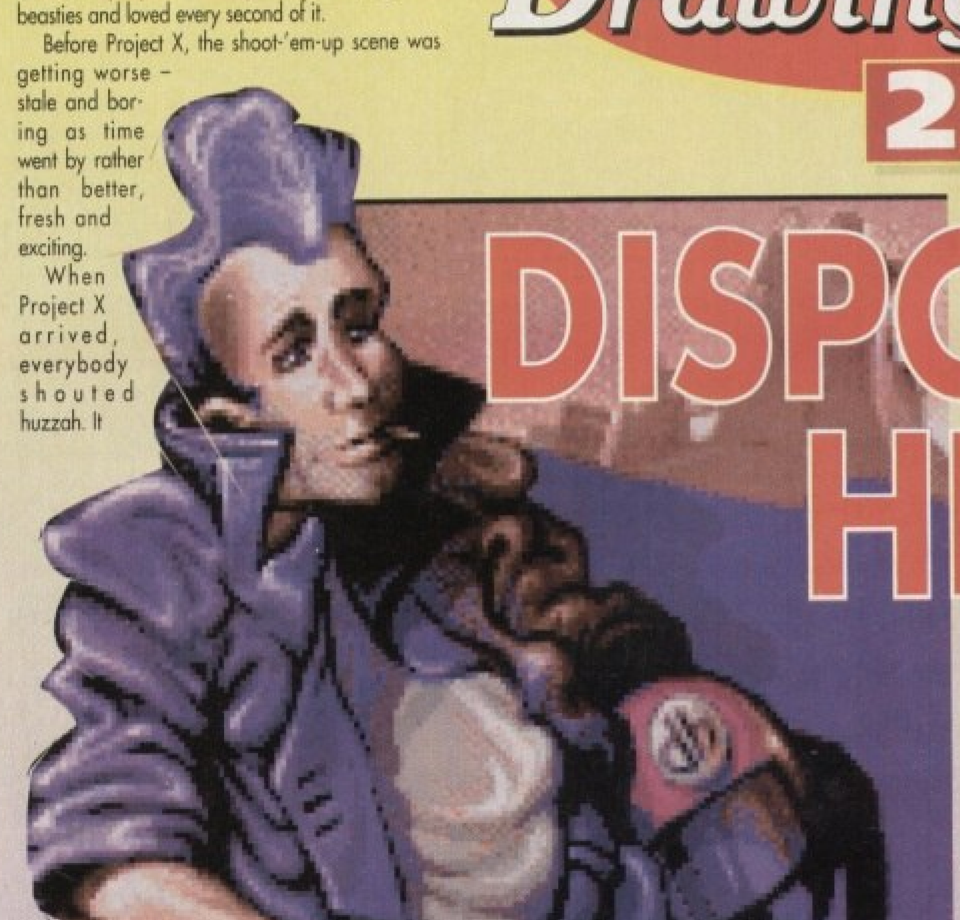
"Eh, barkeep that bloke with the muscles and the bare chest, I don't think I liked his attitude..."

ON THE Drawingboard 2

DISPOSABLE HERO



D-Hero's impressive graphics can be seen to full effect in level two, although they are very like those seen in Menace and Blood Money



Nappies, razors and now heroes. Just what is going on? Jonathan Maddock shoots his way into Gremlin's latest blaster...

One of the best selling games of last year was Project X, lovingly crafted by the boys from Team 17. Shoot-'em-ups have always been popular. In fact, ever since the days of Space Invaders and Galaxians people have waged war on flying alien beasties and loved every second of it.

Before Project X, the shoot-'em-up scene was getting worse – stale and boring as time went by rather than better, fresh and exciting.

When Project X arrived, everybody shouted huzzah. It had superb graphics and sound plus an uncanny amount of tremendous playability to boot.

Team 17's top seller was best described as an old classic, boosted and improved by 90s technology. So anyone producing a shoot-'em-up now is going to have problems. For starters, however good the product is it's instantly going to be compared to Project X.

I personally like a fair old blast and so far have been waiting for a game to rival Project X. Stardust, from brand new software company Bloodhouse, and Blastar from Core Design have still not arrived yet and they look like good entrants for the Try and Beat Project X Championships 1993.

Oh hold on a minute... news of a late entrant has just reached Gamer Towers. Reports state that a game with more than a good shout in the championships is Disposable Hero from Gremlin.

Disposable Hero, or D-Hero as it shall now be known, is a blast and one which reminds me of the past when shoot-'em-ups were at the height of their popularity. On first glance it looks very similar in style to R-Type, Armalyte, X-Out and other such games of that ilk.

Now, in an abrupt kind of interruption sort of way, a story. At the beginning of the 29th Century, the Free Worlds were attacked by unknown forces. This war, commonly know as The Blaze, ended in 2874.

Almost half the Free Worlds' populations were killed and technology sank to a level barely above that of Earth today. Communication between individual star systems was near to impossible.

In the year 2867, a small group of men and women were selected for a highly specialised task force called (and you can gasp at this bit) D-Hero. D-Hero was believed to be the only means of regaining lost technology and freedom.

They succeeded in building a prototype spaceship capable of penetrating the alien strongholds. Thanks to the Von Vonnegut method (opening space-time interrupts at desired places, err apparently) it is possible to tune up the ship on its flight through enemy territory and have it warped to the factory where enhancements can be made. Yes, I know it sounds clever, but it means that the game's creators don't have to explain why there are a number of shops selling goods to the "enemy".



The end of level baddie. A few shots in the right place and you'll be able to progress to level two

At this point there is no ending to my story because as per usual it's up to you to get in there in your spaceship and go and kick some alien butt to complete the tale. For what reason I don't know – perhaps the aliens have threatened to make the humans watch endless repeats of Bobby Davro's Rock with Laughter ('tis a fate worse than death). What it undoubtedly leads up to, though, is a damn good excuse for some classic shoot-'em-up action.

You start your mission with three spaceships, default weaponry and a full damage bar. You sustain damage by colliding with aliens and their bullets and the actual degree of damage depends on which alien you collide with.

Crashing into alien structures will kill you instantly, which I suppose is fairly obvious. Did you really expect to get away with having a barney with a 100-ton piece of solid metal? When your damage bar reaches zero, you will start to scream and shout in absolute panic and then die.

Your ship can be upgraded by picking up blueprints which contain technical information on how to build gadgets. I'm not talking about toast racks and egg timers, though.

I'm talking about big, bountiful, beautiful, beefy, bouncy, hacking, maiming and killing weapons. Weapons to make your eyes water, oh yes indeed.

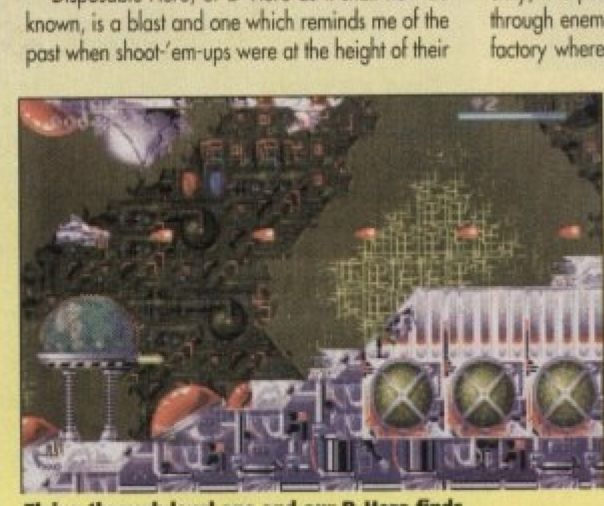
Whenever you pick a blueprint up it is instantly transmitted back to your factory and the piece of machinery it depicts will be constructed. As I said before, it's what shoot-'em-up fans will call a shop where you buy stuff to enhance your ship.

Although it is going to be published by Gremlin, D-Hero has been developed by Dutch company Euphoria. The company was created in January of this year by Laurens van der Donk and Mario Van Zeist.

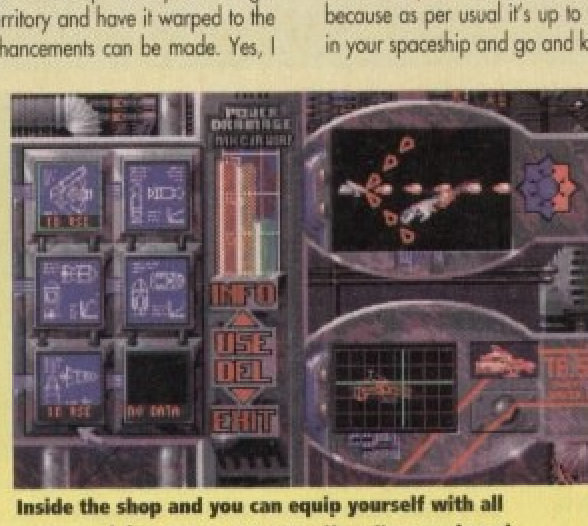
Before Euphoria they formed part of a development team called Boys Without Brains, who were responsible for Hawkeye and Flimbo's Quest.

I've played an almost finished version of D-Hero and it is incredibly impressive. The graphics are as good as Project X and the sound is just brilliant with an array of high quality techno/ambient tunes.

It's been a very long time since gamers have had a good game of this type, but I predict that the wait is now over. Gremlin are here to brush away the cobwebs from your itchy trigger finger.



Flying through level one and our D-Hero finds a warp zone back to the factory. To you and me it's more commonly known as a shop!



Inside the shop and you can equip yourself with all manner of dangerous weapons. Here I've purchased a three-way shot and I can't wait to try it out!



The ship is fitted out with some homing missiles. If you look in the bottom right-hand corner you'll see one about to hit its target

ON THE Drawingboard 3

Oh, he's football crazy, he's football mad, he's football crazeeee and, err I've forgotten what comes next, but our resident schizophrenic Jonathan Maddock turns into Jimmy Hill and inspects Gremlin's latest...

PREMIER MANAGER 2

Indeed Desmond. The boy Gremlin, ever since his football career took off in November of last year, has done well... clearly. Released to high critical acclaim from the finicky computer press (believe you me, we are finicky), Premier Manager transformed the face of football management games as everybody alive knew it.

For the past eight months, Premier Manager has been riding high in the charts and hasn't moved out of the top ten since its release! That's good going in anyone's books and the sheer scale of the response from people buying the product has been incredible.

I can't quite work out why it has become so popular. I'll have to put it down to the gameplay and how incredibly addictive Premier Manager was and still is.

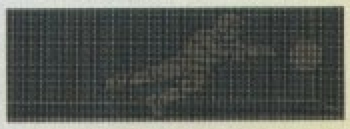
Gremlin have now taken the original game, added a whole host of extra features and slapped a massive two at the end of the title to bring you Premier Manager 2.

STRUGGLING

As before, you begin your career at a struggling Conference League club. Using your truly excellent managerial skills, you have to turn around your team's performance and make the club into a real success story and then you'll hopefully be able to move to one of the country's top teams.

Should you be successful the very next move could be into Europe where you'll have the opportunity to become the manager of one of the world's very best football clubs.

The sequel keeps the same "no-nonsense" style of gameplay and is still one of the easiest football management sims to control and play. It's more



than just picking the right squad on the day – now you'll have everything to contend with.

From ensuring good crowd control and ticket prices to organising wages and contracts, every aspect of the daily running of the club is entirely down to you. Premier Manager 2 will include a detailed report of all the match day happenings, as well as playing some stunning animation of all the action.

Premier Manager 2 is to be released throughout Europe, so as not to disappoint our European chums Gremlin are to release a series of data disks. Once you've tried your hand at the English leagues you'll have the opportunity to have a got at Germany, France, Italy, Scotland and Spain.

The original game was packed with so many features that it was nigh-on impossible to explain them all. Making things worse for journalists with little space on their pages as it is, Gremlin have included an abundance of new features in the sequel.

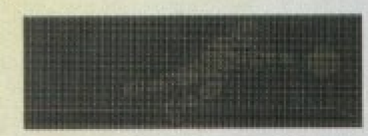
There are now 16 unique playing formations, eight selectable playing styles, eight training camps, 12 different match tactics, up to 26 players in each team and 64 individual sponsors. The ability to buy and sell players in Europe has now been implemented.

WEATHER CONDITIONS

Another nice touch is the inclusion of weather conditions which affect play and sometimes lead to postponed games. There's also a comprehensive banking system with changeable interest rates. I bet that'll have accountants out there drooling...

Premier Manager wasn't really packed with loads of sumptuous graphics, mainly because it didn't need them, but in the sequel there will be full graphical ground improvements and also a few more static screens.

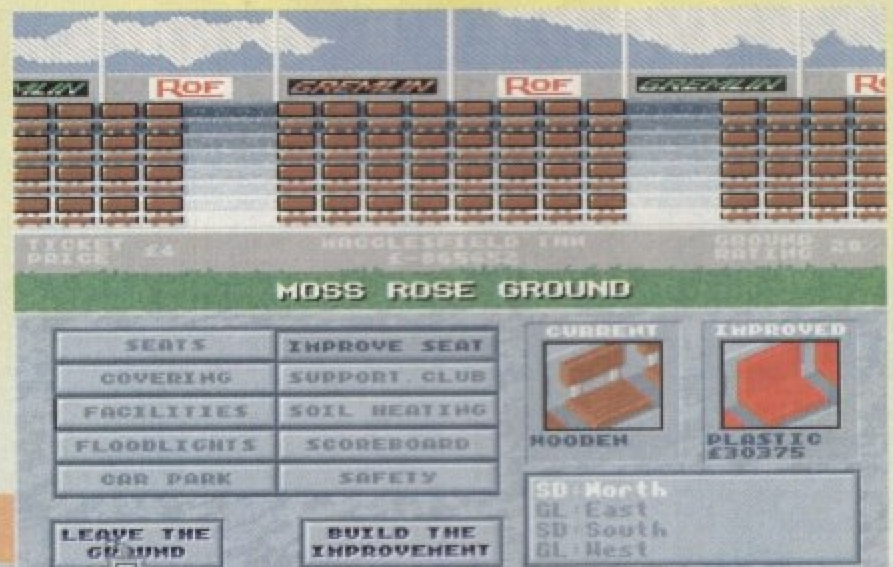
For those who weren't very good at the original (like myself) then you'd better watch out because



PM2 has now got immediate sacking for poor performances. Gulp!

So, there you have it. I can tell by the atmosphere that PM2 is going to be absolutely massive, in fact maybe bigger than its original counterpart.

On the very afternoon I'm writing this, news has just leaked through that Peter Reid has been sacked by Manchester City and barely a paragraph ago I was talking about sackings. Gasp! Was it a coincidence, or have I got some incredibly dangerous psychic powers from the devil like that Damian kid out of the film Omen? Err, well no it was probably a coincidence actually.



The ground improvements screen. Ah yes sir, could I interest you in a brand new set of floodlights or perhaps you like to peruse over our extensive range of dug-outs?

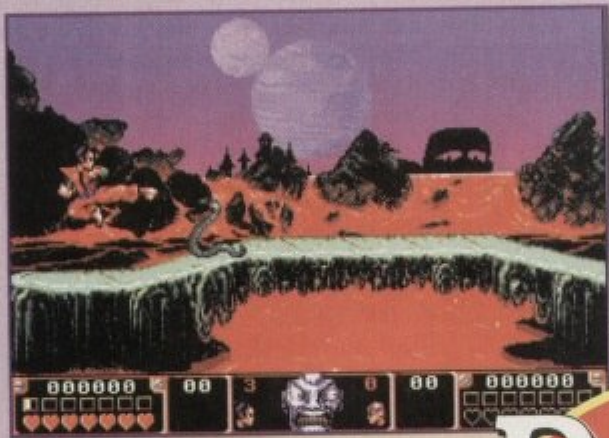


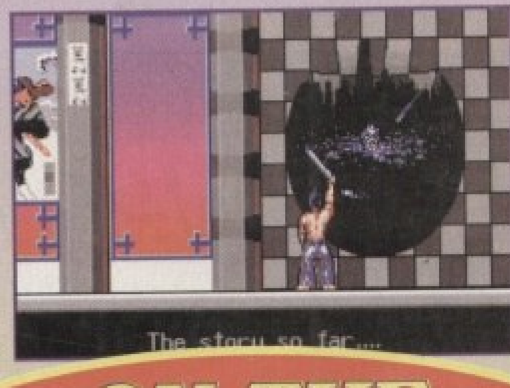


The main menu where the icons have changed slightly, although there are no radical differences



You can decide your match tactics at this point. THe only change for this in the sequel is that Gremlin have managed to squeeze two info screens into one







ON THE Drawingboard 4



Jonathan Maddock takes a quick trip to the land of the rising sun to inspect Psygnosis' latest and greatest platformer

SECOND SAMURAI

In my book there are several types of platform games. Cutesy, fluffy and happy ones like Zool, Putty, Superfrog and Rainbow Islands have sold tremendously well and are probably the most popular available for the Amiga today.

Rivalling this cutesy platform break-out is the hard-nosed, rough and tough platformer. This type normally has a big, muscle-bound hunk of a hero running around trying to avenge whatever he feels like avenging that day.

I personally prefer the latter category of platformer. Games like Myth, Another World, Flashback, Assassin and Switchblade 2 would definitely come with me if I were ever stuck on a desert island.

If I had to only choose one, it'd be an extremely tough decision, but I know First Samurai would be up there in contention with the others mentioned previously.

It was published in January 1992 by the now sadly departed Image Works label and was perhaps one of the most underrated games of all time.

An out-and-out platform romp in the Land of the Rising Sun which featured a brave Samurai Warrior in a desperate bid to destroy a Demon King who had wasted his home village, it was a stamping

PLAYABILITY

First Samurai boasted some of the finest graphics, sound and playability to have adorned an Amiga, and at that time it was the best platformer you could buy.

The game has now been lost in the mists of computer game heaven and software buyers have turned their attentions to something new, something more attractive, something with flashing lights and sound.

No fear though, because Psygnosis have signed up the sequel the aptly named Second Samurai and like its predecessor it could well become one of the software greats.

Second Samurai offers much more than its original counterpart. There are a variety of styles in the game; platform, hack and slash, exploring, puzzle solving, shoot-'em-up and fighting. Basically there's a bit of everything in there to please everybody.

Another worthy feature is the inclusion of a two-player mode. This system allows both players to be on-screen simultaneously and will have separate scores and bonus points. This creates an environment where players can help each other to defeat big opponents, but also thanks to human nature it generates a battle where one player will try to outplay the other.

There is also an option in this mode where the players can choose to be either friends of foes. If "friendly" is chosen they cannot hurt each other, but if you choose "foe" then you can wage war against your opponent.

This could lead to the problem of trying to beat each other up rather than completing the game, so instead of actually killing your opponent you just stun him for a few seconds. This means you can pinch all the bonuses or collect the points for destroying an end of level boss.

Throughout the game there are experience points to collect encouraging players to concentrate on gathering treasure and not just searching for new levels. Thus the players increase their powers by gaining experience and by gaining access to hidden rooms and bonuses.

How much experience points are collected also affects the end of game sequence. The more points collected the more you'll see of the end of game sequence.

Interaction with the backgrounds and the characters in the game has been increased. The player will be able to move/carry rocks to cover erupting volcanoes and geysers, or jump on the back of some opponents to jump even higher.

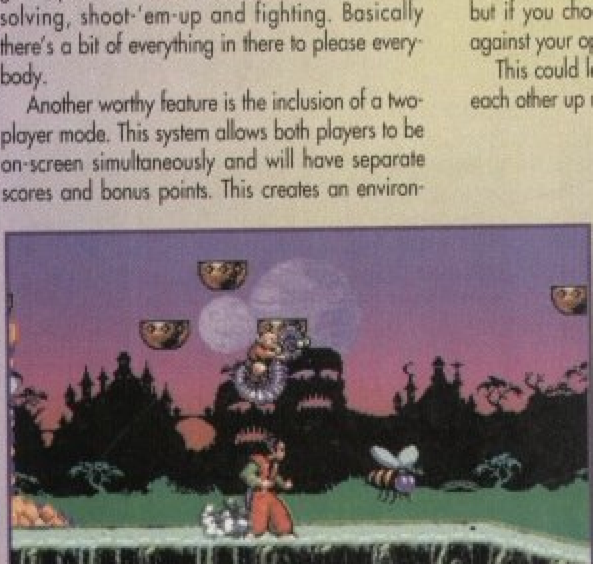
UNARMED

The Samurai will again have a wide range of armed and unarmed moves and the emphasis will remain on easy use of these moves. Our hero will also be able to carry more than one weapon at once.

Those of you who were familiar with the first game will remember the amazing range of incredible sound effects. These have been improved for the sequel and the in-game music will be even better.

This time a volume control has been added for the background music, so that you can turn it down without affecting the volume of the sound effects.

Second Samurai is going to be absolutely massive. It's bigger and better than the original and I know that your are going to fall in love with it. Me? I'm already smitten and can't wait to get my grubby hands on the finished version.





War in the Gulf



Getting into cheat mode

On the filing screen, pop up a file and instead of your name type "Let me cheat!", making sure that you include the capital and exclamation mark. Instead of now pressing Return, hit the RESET button. The number next to the LOSSES column on the file will now be 1, and this shows that you are in cheat mode.

Now type your name in and you can get into the battle area to attack; you are now able to enter the game as normal. When you reach the map screen where you choose which battle area to attack, you are now able to get to any of the squares on the map.

Basically, if you hold down your right mouse button while selecting which square to go to, you can reach any square on the first island.

In cheat mode, there are two major facilities available. If you press Left Amiga-W during a scenario, you will automatically win. Please note that you will get the wrong debriefing text.

You can then continue and progress through the game. In this way, you can gradually see all of the battle areas in the game if you wish.

If you go onto the map screen during a game and select a destination using the mouse, pressing Left Amiga followed by the number of a unit (1, 2, 3 or 4), then that unit will go to the destination specified on its map screen. It is a good technique for moving about quickly in cheat mode.

General points

When you first start to play War in the Gulf it all looks rather complicated. There are four windows on the screen, and you have control of up to 16 tanks.

People who just pick up the game find that they kill tanks on their own side before they even meet the enemy. It's therefore important to get used to the feel of it before expecting to beat the hell out of the opposition.

The best way to do this is to play the demo scenario, and make sure that you follow everything that goes on. Within half and hour, you'll find that the control mechanism is surprisingly easy and intuitive to use.

There are a few general points to remember when you are playing the game. M1 tanks have much more armour than any of the other vehicles on your own side, so ensure that some of your units are entirely made up of M1s.

These should be used for raiding missions, with the very powerful TOW missiles available on your other vehicles kept further away from trouble. This makes sense, because the TOW missile has a range of about 4km.

If you find that the opposition are destroying you too easily there are a number of things you can do.

If you use your Engine Smoke, then that will make you a much harder target. The Iraqi vehicles have very inferior infra red imaging, and so will have no firm target to shoot at. There is nothing to prevent you from using engine smoke most of the time, so keep it turned on as much as you want.

This may mean that you need to use Infra Red imaging, particularly if your view is obscured by clouds of smoke.

Normally the opposition unit which is firing at you will be marked on the map display, so as soon as you are receiving incoming fire, try and identify where the fire is coming from. Once you've been spotted it's often more effective to destroy the opponent than to tun away!

Use the areas of forest, particularly the tree line, to move in if you can. If you move your vehicles just inside the areas of forest on the map displays, then you will be able to survey the battlefield while receiving "terrain protection". Your vehicles are camouflaged and often the opposition will not be able to spot you against the tree line.

Note carefully the aims of the forthcoming battle, and work out a provisional strategy before you start.

Playing the game

Failaka Island

Battle 1

Choose the top left-hand battle area to start. The aim of this scenario is for the player to track a convoy heading from a chemical weapons store in the northern village to a warehouse in the southern village.

Then all that is needed is for the player to destroy the two buildings concerned. So, head one group down the main road to the northern village, and another group diagonally across country to the village in the south-west.

After a few minutes you will spot a group of vehicles leaving the warehouse in the north (it is the most north-westerly building in Az Zor). You can then destroy the building, but leave the vehicles.

Your unit in the north should now be used to stop any Iraqi forces re-entering Az Zor. This is quite simple, particularly if you use your engine smoke.

By the time your other unit reaches Saad Wa Saeed in the south (lay up on the edge of a nearby tree line, or you'll get shot at frequently) you should have just enough time to spot the convoy turning into the second warehouse from the south of this village. Destroy that warehouse (not any other) and you've won!

Battle 2

The battle area in the top right of Failaka Island can be accessed next. The aim here is to get all of the Iraqi forces out of the archaeological site of Ikaros at the centre of this area.

Then you must ensure that no forces re-enter. Finally you must locate a group of Gaskin missiles in the north east of the area.

One grave complication about over-running Ikaros is that if any building are destroyed, you lose the battle. To avoid the Iraqis taking pot shots at you (and thereby causing potential collateral damage) you could well attack them from very long range using TOW missiles.

If you do this from far enough away, you will find that you can destroy the forces in Ikaros without any shots being fired back. Now, then best way of preventing a further re-occupation of the site is not to stick your forces in the middle and wait for a response.

That way there certainly will be collateral damage. So it is best to set your forces on the edge of the forests surrounding Ikaros (maybe three groups), and await to ambush forces as they try to





re-enter. In the meantime your fourth unit can search for the missile site which is to the north east of the most north-easterly forest in the area. In all, if you hold out for 30-32 minutes from the start of the battle you have won.

Battle 3

The final battle area of Failaka Island is the south-easterly part of the island. You have to provide protection for a group of support vehicles which will arrive at the southern village of Failaka after 16-18 minutes.

Prior to this you should have cleared the road to the north from the village. Another aim is to destroy the helicopters in the northern airfield.

To clear the northern road, send three of your units to the forest edge opposite the three locations where you have been told there are Republican Guard road blocks.

When all three groups are in place then launch a simultaneous attack on the three road blocks. It should be quite easy to destroy all three units. Now, use forest cover to take two of your units south to defend the convoy in Failaka.

If you place on unit to the north west of the village and one unit to the east of the village, you should be able to provide satisfactory cover.

At some point your fourth group will have to launch an attack on the northern airfield. Set this group up in forest cover opposite the middle of the airstrip, and aim to destroy the attack helicopters in the middle of the strip as soon as you can. If you have any difficulty with a counter-offensive launch as a result, your third unit should be free to help.

Bubiyan Island

Battle 4

The first battle on this island is relatively simple. You must take all of your troops over the bridge, and in the process destroy all of the groups defending the bridge area.

Then you must await attacks from the south, while ensuring that all of your forces are hidden from view of the troops from the south. Set two units in the camouflage of the forests just to the north east and north west of the bridge. These should be able to dispose of any southern troops.

The other two units should then try and attack the police post in the north. The best route to take is to veer to the west, using forest cover to come into the post at close range from the west.

If you have destroyed all of the opposition at the post, then you will win if you hold out at the bridge for 30 minutes or so after the start of the battle.

Battle 5

This is quite a tricky battle to get correct! You must protect a convoy which is plying the road from north to south and back, from attacks from the west of the battle area.

With four units, your best approach is to put each unit at a roughly equidistant position from north to south to defend the convoy. You can provide adequate defence by standing still, so don't try and escort the convoy. The units should be to the west of the road, on the eastern end of the minefield.

You are now obliged to keep a very close eye on marauding attacks from the west. If you keep aware of any activity on your map display you should immediately respond. It is also fruitful to just scan the battle view, to keep an eye out for enemy activity.

If you are aware of the position of your convoy, and so are able to note where the most danger lies at any moment, you will be able to provide protection without losing any vehicles. It can certainly be done!

Battle 6

You have a series of objectives in this battle. Firstly, you must prevent any breakout of Iraqi troops to the east, so position one unit at the eastern-most end of the east road, and make sure that all activity on the road is stopped. Secondly, you have to search for two vehicles hidden in two separate buildings. In this battle area each forest has a building to the south of it. Now, there is no need to destroy a building to find if there is a tank inside – you can use the infra red sensors, which will tell you on a quick scan.

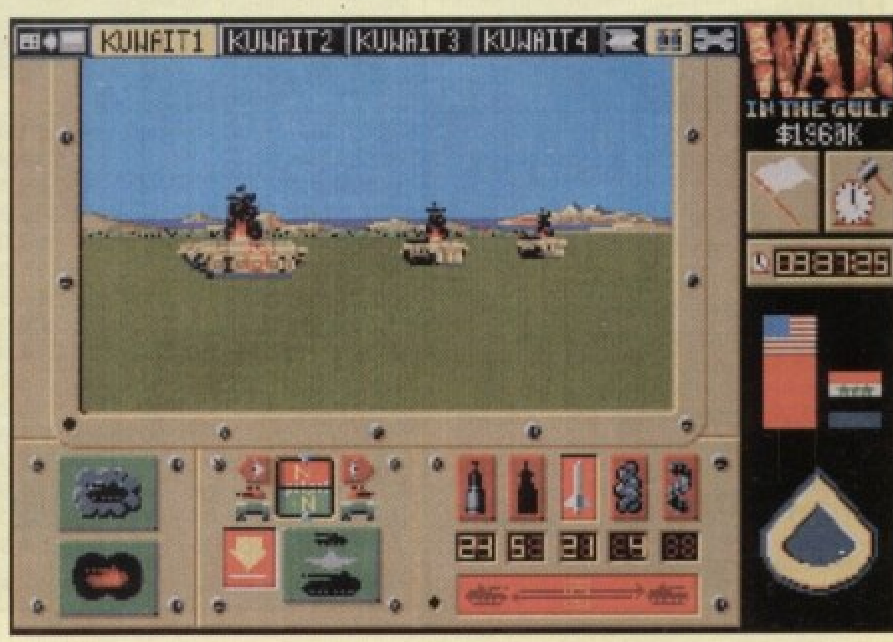
This will prove very useful, because half of the buildings will cost you money to destroy, and the last thing you can afford at this stage is to lose money. On the other hand, make sure you do destroy any building (radar tower, satellite dish or comms tower) that will gain you money - you will need it all!

You will just have to search every building in the area for the hidden vehicles (note that they are randomly hidden in different places every time you play). If you keep to the edges of the battle area as much as possible, you will avoid a proportion of enemy counter-attacks.

Once you are ready, make sure that you can reach the rendezvous point at the designated time. The location is just to the east of the most southerly forest. If you happen to destroy the three radar towers before the end, then you will make even more m oney!







THE CENTRE OF TEC

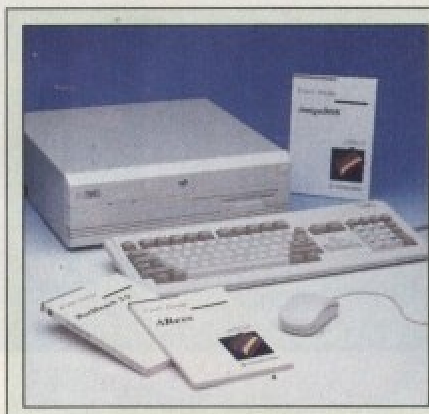
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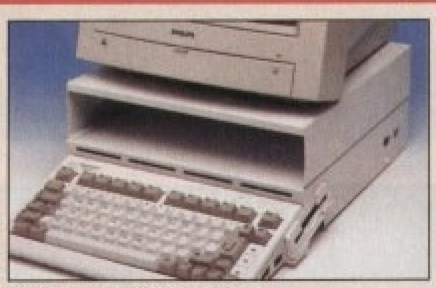
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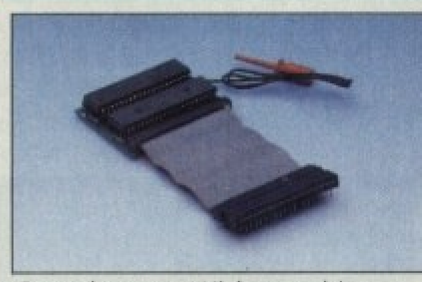
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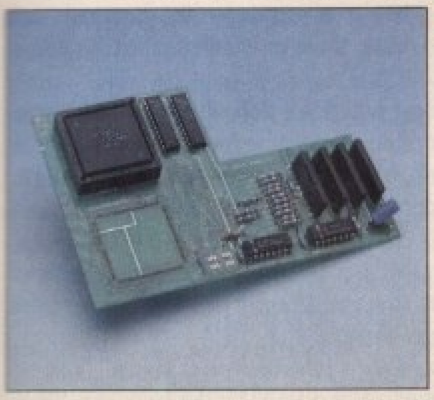
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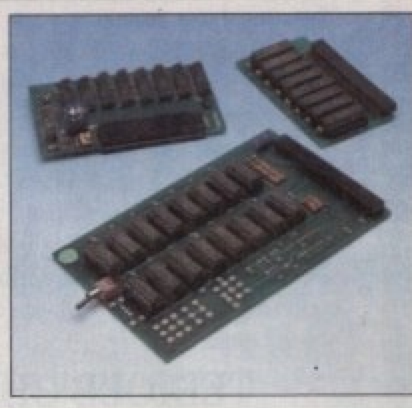
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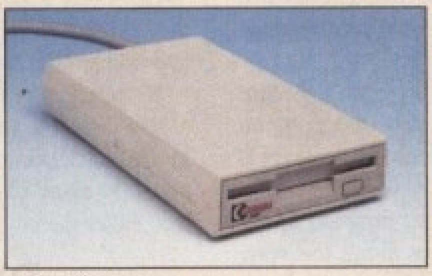
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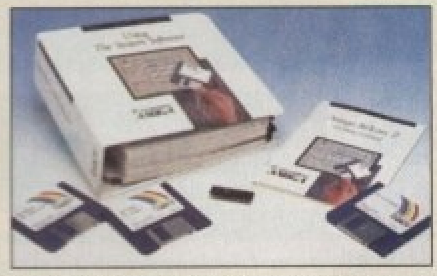
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Dynamic

If anyone has ever encouraged you to learn ARexx, one of the things they might have mentioned is its similarity to Basic. In many ways this is true.

However, there is one area where they are very different indeed, and in this ARexx knocks spots off Basic. The area I am referring to is the ability to handle dynamic code. Before looking at some examples of this ultra-useful programming feature, we will go over some of the main points of dynamic code again.

First of all, most of you know that interpreted languages, like Basic and ARexx, are noticeably slower than compiled languages, like Pascal and C. However, the loss of speed is set off against a massive gain in ease of use and interaction. These features can be a lot more important than pure speed, especially when designing a new program.

TEDIOUS CHANGES

Generally speaking, compiled languages need all of their source code to be compiled, assembled and linked before the program can be run. If any changes need to be made, no matter how small, the whole process must be repeated - this can be quite tedious.

You cannot change a compiled program's system space (the parts of the memory that store the program instructions and the variable names) once the program is loaded.

As a result, it is difficult to build your program up bit by bit, testing your ideas and changes along the way. Interpreted languages allow this kind of program development to happen much more easily.

Because the program is run line-by-line (and not in one unit), when you make a change in any line, or add new lines, your program will take this new form.

However, up to now we still draw a firm distinction between the parts of the program that are considered to be instructions and the parts that are considered to be data. Dynamic code goes even further than simple interpretation, by blurring the distinction between program and data. Whereas programs written in interpreted languages can be paused and changed without reloading them, programs containing dynamic code can change the system space while they are actually running (that is, not in interactive or debug mode!).

Since this is equivalent to changing the program itself, this type of dynamic code is sometimes known as self-modifying code, or syntax/semantics collapsing.

CONTROVERSY

Now, as you might guess, things can get a bit hairy if programs are allowed to modify themselves too easily.

There is quite a bit of controversy around programs that change themselves. It is generally recommended – and quite rightly so – that you should steer well clear of them.

Nevertheless, dynamic code (like most powerful and dangerous things) can be extremely useful in small and well controlled doses. The kind of thing we will use it for is not large applications, but small, clever "hacks" that will allow us to do tricky jobs in just a few lines of code, with the maximum of ease. In the same way that the interaction of an interpreter allows more flexibility than a compiler, dynamic code allows even more flexibility, since you do not have to worry about the variables that your program will need when it is running – the language will allow the program to create them or eliminate them as necessary.

This means that ideas which are difficult to code with standard programming techniques become much easier to handle. Dynamic code makes it easier to express what you think, because it does not reinforce rigid boundaries.

Of course, any job could be done just as well (and probably more efficiently) if it was laboriously coded without dynamic code, but the amount of programming work involved would be much more.

You would need to write all the tricky bits yourself, instead of having them supplied automatically by the language. When you want a quick solution to a specific program, results can be much more important than technical niceties.

Obviously if programs are sloppy, the results will suffer in the end, but if there is a quick way to get a result it is pointless doing it the hard way.

Having got some of the theory out of the way, let's look at a few concrete examples to illustrate these ideas. We first looked at dynamic programming in these pages about a year ago, and many of the articles since have touched on the subject, either directly or indirectly.

DYNAMIC CODE

The purpose of this summary is to highlight the main techniques involved, both for ARexx newcomer and for the more experienced users.

ARexx provides three main approaches to using dynamic code. These are compound symbols, the INTERPRET instruction, and the variable checking functions like Value(). We will look at them in detail. Remember that they are not normally found in the more common languages like Basic. Compound symbols and second level substitution comprise the first major tool that ARexx supplies for dynamic coding. Now, if you have used ARexx at all, you will already have encountered compound symbols, since ARexx uses them instead of arrays and tables, for example index.n, matrix.3.4, or man.age.

We will now look at a process known as second level substitution which is very useful for creating dynamic tables easily. Used carelessly, it can also be the cause of many errors.

Suppose we have a string like this:

```
string = "-100~abC$..##!ARThur"
```

the compound symbol unusual.string gets effectively reduced by ARexx to:

```
unusual.-100~abC$..##!ARThur
```

There are two things to note in our example. Firstly, by using substitution, the system is able to create a variable (compound symbols are variables) with a name which cannot even be legally written in ARexx!

Secondly, since it is a variable, it can have any value, including, naturally, the name of its own node. So you can have a variable called array.John123 with a value of John123!

It is therefore possible for the names of the variables to be determined by their values. Initially the mind boggles a bit, but once the technique is grasped it is very useful, and good fun.

This type of system is sometimes known as content addressable memory, since variables can be identified by their contents.

Here is a little example that counts and reports the frequency of words in a text. As you can see the code that does the actual work is barley five lines long:

```
/* ************* */
/* WF-count.rexx */
/* ************* */
count. = 0
list = ''
sent = 'The three blind mice jumped
    over the lazy white mice,
    in the blind alley.'

/* process sentence word by word */
DO UNTIL sent = ''
  PARSE UPPER VAR sent word sent.
  /* remove commas,fullstops */
  word = Strip(word,'B','.')
  word = Strip(word,'B',',')

  /* This is the main code: */
  IF count.word = 0
  THEN DO
   count.word = 1
   list = list word
   END
  ELSE count.word = count.word + 1
  END

/* Write the results */
DO UNTIL list = ''
  PARSE VAR list word list
  SAY word '=' count.word
  END
EXIT
```

code

The program is very straightforward. By initialising the stem count. to 0, all occurrences of count.anything will be 0 unless specifically changed. This is a basic rule of compound symbols in ARexx.

As each word is checked, its count is increased by one. At the same time we maintain a list of unique words.

COSMETIC

The rest of the code is mostly cosmetic management. Each word is read in and converted to uppercase, so that "The" and "the" are recognised as the same word. The second parameter to the Strip(,'B',) function simply means that Both leading and trailing punctuation must be removed.

Even in a simple interactive language like Basic this program would have taken substantially more effort, since we would have had to create arrays of strings and loop through them checking for the occurrence of each word.

In ARexx this table is maintained automatically and searched "on the fly" without us having to do anything about it. I hope this little example makes some of the theory we have discussed clearer.

Here is another very similar example that reads lines from a file and writes them to another file, discarding all duplicate lines.

This idea is expressed in English very simply and ARexx lets us code it equally simply:

```
/* *************** */
/* NoDupLines.rexx */
/* *************** */
/* read a file line by line */
/* discarding duplicate lines */

succ = Open(infile, 'df0:xxx','R')
 succ = Open(outfile,'df0:yyy','W')

 DO FOREVER
  line = Readln(infile)
  IF EOF(infile) THEN EXIT
  IF table.line ~= line THEN DO
   table.line = line
   Writeln(outfile,line)
   END
  END
 EXIT
```



Once learned, this technique has many uses. Use ARexx's tracing facilities, especially the TRACE I option if you have trouble understanding what is going on.

The INTERPRET instruction accepts any ARexx string and attempts to interpret it, just as if it was a line of regular ARexx code. If you place it in an infinite loop that reads input from the keyboard, and passes it to this instruction, you effectively have an ARexx interpreter:

```
/* mini-interpreter */
DO FOREVER
PARSE PULL input
INTERPRET input
END
```

The most obvious use of this is when someone wants to introduce more code into a program while it is running. We saw one useful example of this in the last issue, when a string arriving from a remote computer was interpreted by ARexx and thus used to control programs running on an Amiga from a distance.

In fact, the INTERPRET instruction is useful anywhere that ARexx code has to be introduced externally (that is, where it is not part of the original program).

It is interesting to note that besides its advanced and arcane uses, the INTERPRET instruction can also be used to neaten up programs.

For instance, suppose we have a procedure which needs to share a very large number of global variables with the main program. Normally we would have to write them all at the beginning of the procedure code:

```
MyFunc: PROCEDURE EXPOSE var1 var2 var3 var4 ,
        var5 var6 var7 var8...etc,etc
```

This can be particularly irritating if you have many procedures, and they all need to share the same variables. If these variables are all placed in a list in the main program, the following trick can be used:

```
globals = 'var1 var2 var3' ...etc
....
MyFunc: INTERPRET 'PROCEDURE EXPOSE' globals
```

The INTERPRET instruction will ensure that all the globals' names are expanded and expose them so that they are shared.

● *Next month we will round up our overview of dynamic code, and also look at the third tool that ARexx supplies.*

The dynamic coding techniques possible with ARexx won't quite write your programs for you, but as Alex Gian demonstrates, they'll make some chores so easy you'd think they could...

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Smooth operator

Paul Austin explains how to get the best in speed and quality when it comes to full frame animations

With the arrival of the AGA chip set and two new animation formats, the confusion surrounding graphic quality and play-back speed has become even more pronounced than before.

On the initial release of the AGA, the Amiga world was alight with what transpired to be totally outlandish claims concerning animation.

Back in the early days almost anything seemed possible. Even hi-res, full frame, full overscan, Ham8 images would animation perfectly, no matter how much transition takes place between frames – according to the pundits.

In truth, little of this initial hype actually held water, and in fact animation on the so-called super fast AGA appear only marginally quicker in some modes and invariably slower when it came to full frame playback.

After many a late night desperately trying to squeeze additional speed from the AGA, my personal choice has to be old-style HAM, lo-res interlace – with overscan.

Although lacking colours in comparison to the AGA, old HAM nevertheless offers the only full frame playback medium which can achieve reasonable image quality and more importantly a respectable frame rate.

Even with the compromise of lo-res and just 4,096 colours, achieving reasonable rates and image quality can still be a problem, which is best overcome with the assistance of ADPro and its SmOrd dithering, file format conversion and animation load and save options – applied via the excellent ProControl batch processing interface.

STILL FRAME

If you then team the HAM output from ADPro with the speed of an 040 you'll have the closest thing to still frame recording the Amiga can achieve. In fact, in some cases animation playback will even exceed the 25fps regarded as the de facto videographic standard. As for the much-hyped Animation7 and Animation8 formats, things are again a tad disappointing, with even lo-res interlaced Ham8 images playing significantly slower than their old style counterparts.

Obviously the new modes have the benefit of the huge number of colours and resolutions, but alas all remain just too slow for full screen use – even with the best efforts of both Animation7 and 8.

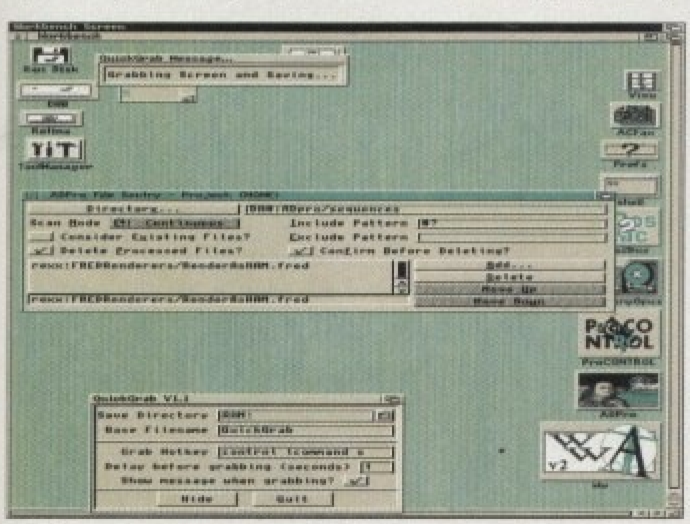
As a consequence Animation5 still remains the fastest playback format – easily beating both the new modes on either AGA or ECS machines. Not all animations requires full screen, and in such circumstances the new modes and the AGA quite literally blow the old-style HAM out of the water.

In fact, even the odd full-screen animation with limited movement and minimal reflections – assuming you're ray tracing – could be improved in certain AGA modes.

Finally if you are ray tracing, always produce your frames as 24-bit files and leaving the scaling, resolution changes, animation construction and dithering to ADPro – as it will almost certainly do a better job than simply allowing the rendering software to make format alterations or animations.

And of course the essential SmOrd dithering required to achieve optimum playback speed and minimal colour stepping is only available through ADPro and ProControl.





ProControl, a near essential for the serious animator

For those who suffer from 24-bit storage problems, ADPro supplies yet another life-saver in the form of Sentry – a program which comes as part of the ADPro utilities collection.

When combined with ProControl, even the trickiest storage problem should be resolved. Once set up with an appropriate directory and processing instructions the program simply sits in memory and constantly monitors the specified directory.

All that remains is to instruct your ray tracer or modeller to send its finished files to the same location. When a frame is complete and saved out, Sentry will detect the newcomer and automatically initiate processing within ProControl.

Obviously ProControl has to be resident in memory along with ADPro and the rendering software – which means a sizeable RAM disk is essential. However, extra RAM will almost always work out far cheaper than a new hard disk.

As for ProControl, you merely set up the processing options as normal but define the source as Sentry rather than a disk file. Obviously the finished animation has to go somewhere but as you're probably aware, a finished HAM interlaced animation is infinitely less bulky than a huge pile of 24-bits.

To add the finishing touch Sentry will even delete the original 24-bit after processing, thereby freeing your desperately needed disk space for the next frame.

Due to this ingenious approach to automation, huge animations can be produced without the horrendously restrictive intermediate stage usually associated with animation production.

Having your ray tracer, ProControl, ADPro and Sentry all running at once doesn't do rendering time much good, but with really big productions often requiring days or even weeks to generate, a few more hours isn't much to ask considering the benefits on offer.

Now thanks to the ADPro family, generating a 250 frame animation – roughly ten seconds – would be a simple matter of setting up the source, destination and processing commands and hitting the render button – ensuring approximately 6 to 7Mb are free on your hard disk for storage of the finished Animation.

To put that into context, the same animation stored as 24-bits could require anything between 100 to 200Mb of hard disk space plus maybe a couple of hours post-production in order to generate the finished animation.

Obviously having the original 24 bits safely tucked away in case of accident for additional experimentation is ideal, but let's face it, how often does anyone have that sort of free space easily available?

In short, the moral of this tawdry tale is get yourself a copy of ADPro and ProControl, and stick with old style lo-res HAM interlace for animations – at least until the mythical 060-based A5000 arrives sometime in 94.

'Some mags are

to be tasted, others

PC Action...

to be swallowed,

the shape of

and some few

things to come.

to be chewed

Look out...

and digested.'

Groucho Marx
(1890-1977)

Revealing your sources

Understanding programming code is a headache unless you document it clearly. Colin Yarnall underlines the importance of comments

It is usual to write comments in source code to make it clear what is going on. If you think that these are always put in programs for the benefit of other programmers, think again.

It is very easy to write a program, forget about it for a few months, then decide to go back to it. If you have not included any information about how it works, you may find that you have trouble understanding your own program!

Don't wait until you finish coding before thinking about adding comments, particularly when working on large programs, as this is a very bad practice.

A useful technique is to write the remarks before writing the bulk of the code so that you end up constructing a skeleton program upon which to build.

Having explained the need for comments you now need to know what they look like:

```
(* This is a comment *)
{ so is this }
```

As you can see there are two styles – the first is the old way of doing things and requires a couple of keystrokes more effort. Both styles serve the same purpose so it becomes a matter of personal preference as to which you adopt.

Personally, I prefer the first method because it makes comments easier to spot. Another good reason for using this style is that C uses curly braces as the equivalent of Pascal's begin-end brackets. As most of the RKRM examples are written in C, it makes sense to avoid the possibility of slipping into one language while programming in the other!

As you are probably aware, most programs receive data, process it and output some result. Last month we looked at text output using the write() and writeln() procedures. These procedures can also be used to output numerical data but before we investigate this, we need to see how to input and process some numbers.

A variable is a memory location where a value may be stored. It is referenced using a variable name and the value that it contains may be changed by applying operations.

```
program Example01;
(* A PROGRAM TO DEMONSTRATE THE USE OF VARIABLES *)

var  (* USE var TO INDICATE THAT WE ARE GOING TO DEFINE SOME VARIABLES
*)
 a : integer;  (*** EACH VARIABLE MAY BE DEFINED ON ITS OWN LINE OR
***)
 b, sum : integer;  (*** TOGETHER WITH OTHERS OF THE SAME TYPE, WHICH
IN THIS CASE IS INTEGER ***)

begin
 a := 5;
 b := 6;
 sum := a + b;
 writeln(a,' + ',b,' = ',sum); (* VARIABLES DON'T NEED QUOTES BUT TEXT
STRINGS DO! *)
end.
```

In the program above, we have defined three variables that will contain integer values (whole numbers). To put values in them, we use the assignment statement which takes the form:

```
variable := expression
```

Variables a and b are assigned literal values, while sum is assigned the result of the expression a + b. The name of the variable on the left-hand side of the assignment may also appear on the right-hand side:

```
x := 15
x := x + 10
```

The right-hand side of the assignment is always evaluated first, then the result stored in the variable. If the two statements above were part of a program, the second one would be executed in the following way. The value of variable x (15) would be added to the literal constant ten, then the resulting value stored in x.

The most basic operations that may be applied to integers are plus, minus, multiply, and divide. These are represented by the following symbols:

+	addition
-	subtraction
*	multiplication
div	division.



An integer operation will always result in an integer result, even in the case of division. When working with real numbers, division may result in a fractional part – consider five divided by two.

By convention we would say the answer was two and a half but using integer division it would be two remainder one. The Pascal div function completely ignores any remainder so:

```
x := 5 div 2
```

would result in x being assigned the value 2. If we wanted to find the remainder we would use mod (which is short for modulo):

```
r := 5 mod 2
```

Integers may be input using the readln() and read() procedures. The difference being that readln() inputs a value then outputs a line feed, while read() just performs input.

```
(* DEMONSTRATION OF INTEGER INPUT AND OUTPUT *)

var
   a,b,result : integer;


begin
  (* INPUT TWO INTEGERS *)
  write('Enter an integer: ');
  readln(a);
  write('Enter another one: ');
  readln(b);

  (* ADD THEM TOGETHER *)
  result := a + b;

  (* AND OUTPUT THE RESULT *)
  writeln(a,' plus ',b,' is ',result);
end.
```

OctaMed revisited

The old stalwart of Amiga music gets yet another upgrade – or is it just a facelift? Paul Austin reports



For those who've somehow avoided contact with Med in its countless incarnations, v5 is the latest, eight-track version, boasting four-track sample playback alongside four-track synth sounds and 64 Midi tracks.

OctaMed doesn't stop with handling samples, synth sounds and Midi, either – in fact, a complete and impressive sample editor/recorder comes as part of the system as indeed does a separate synth sound generator/editor.

As far as sample editing is concerned there's very little to complain about with all the major edit function on hand for cut and paste operation. There's even a fair selection of special effects such as optional anti-aliasing, pitch changing, anti-clipping and unused space removal.

Unlike its predecessors, a 2.04 machine or above is essential, courtesy of the massive redesign of the interface which now depends heavily on the new features that WB2/3 machines provide.

A perfect example of this devotion to WB2 is the program's on-line help which allows instant access to the accompanying on-disk manual. Thanks to the hypertext employed by the Amiga guide, locating specific information is now much quicker and more intuitive than simply ploughing through endless documentation – a rather annoying aspect of earlier revisions.

As well as the Amiga guide, the power of WB2 has also been lavished on the interface itself with most of the power icons controlling additional pop-up requesters which not only tidies up the overall appearance but provides a much improved one-stop approach for feature location, thereby leading the user towards the more obscure options which may have been overlooked in the past.

SUBTLE ADD-ONS

On the Midi side you're no longer limited to basic multiples of four tracks. Thankfully you can now have any number your Midi system requires, and even better the limit of 100 blocks has been trashed in preference for a whopping 1,000 – great news for both internal or Midi productions.

Another useful revision concerns module packing – now both PowerPacker and SFCD formats are catered for. SFCD is a packing format used in Stephan Fuhrmann's PowerPlayer module player program.

More subtle add-ons include the option to calculate module length prior to saving, while a Save Timer feature provides the ability to specified a re-defined auto-save period.

As for file formats there's a new sample type entitled ExtSample. They are fairly similar to normal samples, except that they boast two new very low octaves.

Alas such samples are only useful for special effects due to certain hardware limitations which make their use within melodies a fairly risky undertaking.

On the Midi side, yet another new file format appears to cater for the new 64-track support, sections and multiple play sequences.

In addition to new file formats a Sections option has been added, providing a major improvement by allowing the organisation of songs in a much more hierarchical manner.

The idea is that you can create several play sequence lists – each of which can be named – and then define the order in which they are played. The section list works as the master play sequence, where the actual play sequences are treated as sub-sequences.

Continuing in the crusade for more ease of use, blocks can now be named allowing much easier handling, and better still up to 999 entries can be made within each sequence.

A new Display Max Tracks feature allows the user to define the maximum number of tracks that can be displayed on-screen, while a new mouse config option allows the mouse to be configured to your taste for selected tracks on/off, cursor position or range marking operations.

Yet another intuitive improvement entitled Play After Loading automatically initiates play back and can be set up to flush unused instruments when clearing the current song as part of a multi-module.

Better still, a new Play Timer option can be reset by pressing the R gadget next to it, thereby instantly positioning the song at the specified reset point when required.

Purchasing options

If you're already sold on the all-new OctaMed it will set you back the princely sum of £30, with an upgrade from v4 available for £24 – great value if you're already familiar with Med.

If not, it could be worth picking up an older version from the PD and upgrading later if you get hooked.

OctaMed Pro v5 is available from:

Seasoft Computing, The Business Centre, First Floor, 80 Woodland Ave, Rustington, tel: 0903 850378

New sample editor features

Although the sample editor has been a part of the Med environment for some time, it must be said that it has definitely improved with keeping, and to be honest it's more than a match for many a stand-alone sample editor thanks to the new v5 add-ons.

Invert	negates the ranged waveform.
Chop	discards non-ranged parts of the sample.
Remove Unused Space	removes empty space from both ends of the sample.
Play Buffer Contents	allows you to listen to what the copy buffer contains.
Change Volume enhanced	an option to avoid clipping plus four presets for doubling, halving and fading in/out.
Change Pitch enhanced	provides an option to cancel the current fine-tune value plus the ability to turn off anti-aliasing.
Mix enhanced	source/destination levels can be set.
Create Chord	Allows the creation of chord using between two to four notes from an existing sample



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Caligari has since its release been widely regarded as one of the most elegant modelling programs with an interface which is at the same time easy to use and very intuitive.

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Out of this world!

Phil South looks down from a weather satellite and checks out the new CIX Usenet reader



It's completely amazing what you can get at on-line these days. Say you needed a really recent picture of the earth from space. Where would you get it?

Well, Meteosat sends weather pictures down to earth on a daily basis, and the University of Edinburgh very usefully puts them on its own computer system for anyone to download. The most convenient mirror site is Imperial College.

This mirror system means that certain sites contain information from other sites which is updated (hopefully) fairly regularly. But Internet being what it is, you can expect that the very thing you are interested in suddenly stops being current as soon as you start taking an interest.

The images on this page are produced from Meteosat data three times daily, at 0702 GMT, 1130 GMT and 1502 GMT. In all five regions are represented on the pics from Edinburgh: the UK, Europe, Scandinavia, the Atlantic and the whole world. At the time of writing the Atlantic images were temporarily unavailable, but hopefully these should have returned by late July.

You can get pictures in GIF or JPEG format, and obviously if you check it out you'll see that the JPEGs are about half to a quarter of the size of the GIFS, and the GIFs are only 256 colours whereas the JPEGs are 24-bit.

Look in the JPEG directory and you find high resolution images of Europe (1,250 x 625) and also some very large images of Africa (1,024 x 1250), and like all the Meteosat pictures they are made in two types using the two types of imaging system on the satellite, visible and infra red.

If you want some satellite pix, the site to FTP to is:

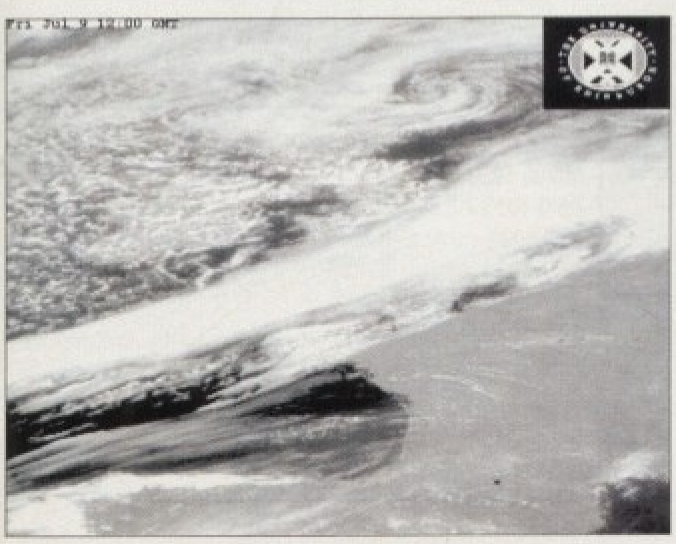
src.doc.ic.ac.uk

otherwise known as Imperial College London. The pictures are mirrored from met.ed.ac.uk or University of Edinburgh. Other sites throughout the Net provide pictures local to the node in question, so you can get pictures of other places if you delve around a bit. One of the best ways to do this is via Gopher, as the process is entirely automated.

Incidentally if you run a PC emulator at all you might be interested in the FLI animations also on the same site, under "animations" rather than "images". These are short sequences, just like the ones they show you on the TV behind Michael Fish. Get them before the old Cod himself, with the power of comms.

To contact Phil South email him as:
snouty@cix.compulink.co.uk
uad1135@dircon.co.uk





Access pictures like this for yourself

How to Usenet

CIX has always been a bit classy in its features, and the Usenet feed has always been a top notch way of seeing all the chat on one of the world's biggest electronic conferences.

But writing to Usenet has always been a bit tricky; using mail to news.demon.co.uk to write messages is one way, for example.

But now there is a new way to enter the world of Usenet, and this is via the new Newsnet reader. This is a proper RN type reader for the Net and it must be one of the most complex things it's ever been my misfortune to handle on-line.

It's complicated, there are a load of commands to learn, it's unpredictable because itchy trigger fingers make mistakes, but you know what? I love it.

In fact RN-type newsreaders have been in place in boards like The Direct Connection for ages, but this is a fairly recent development on CIX.

I would have thought with all the brains at CIX they could have made a reader which was more like their own system, make it a seamless part of the CIX environment so that you can access the system via a OLR like Nicola or something like that.

But no, it's a complex beastie, and I'm only just confident enough to use it after a few weeks of dibbling about on it. The best thing you can possibly do is to download the file called NEWSNET.DOC from the cix/manual topic, and read the document very carefully indeed.

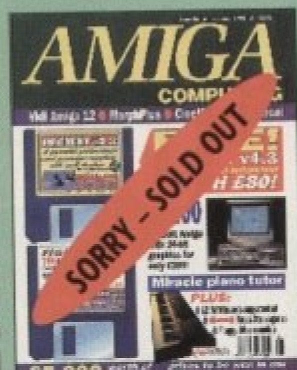
It contains all the keystrokes you need for the reader, and in fact I'd print it out so when you hit a problem you can flip the pages and at least have a stab at typing the right thing.

I'm sure that like learning to navigate around CIX in the first place, using this new RN reader will become easier over time, and with use the idea of choosing whether to press s or S or ^S or K or k or n or P or $ will be second nature like telling people your name. Mine for example is, um, hang on a minute...

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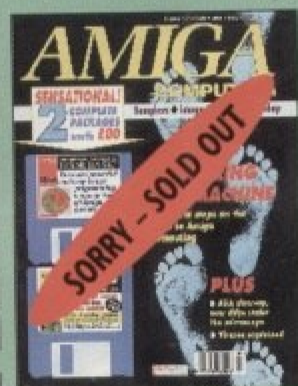
If you've missed any of these issues, now's your chance to put things right, by either buying an individual issue or a full six months' worth. But hurry - stocks are limited!

JANUARY



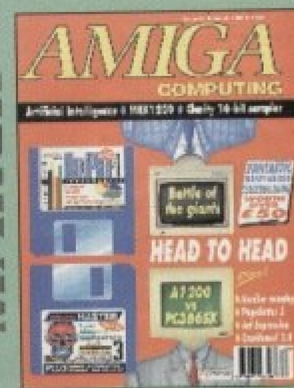
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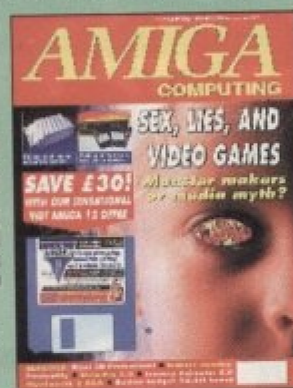
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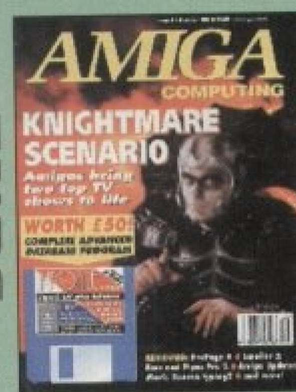
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MAY



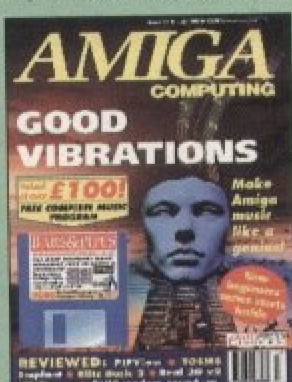
Are computer games harmful? Scanner round-up. Reviews of Pixel 3D Pro, Retina 24-bit board, Vista Pro 3.0, Scenery Animator 2.0.
FREE: 24 page supplement - Guide To Hardware.
ON DISK: Vidi Amiga 12 (grab disabled), Fun School 3 Wordsearch module (over 7 year olds).

JUNE



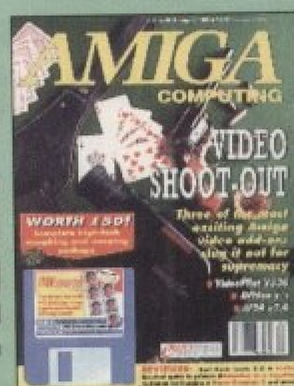
We go behind TV's role playing show - Knightmare. Guide to budget DTP software. Reviews of Big Alternative Scroller 2, ProPage 4, Bars and Pipes Pro 2 and Mavis Beacon Typing 2.
ON DISK: Infofile, Scala HVT (save disabled) VALUED AT £50

JULY



Evelyn Glennie talks about her music.
Reviews of Real 3D v2, Emplant, TOSMS and PIPView.
ON DISK: Bars & Pipes Pro 2 Jr VALUED AT £100

AUGUST



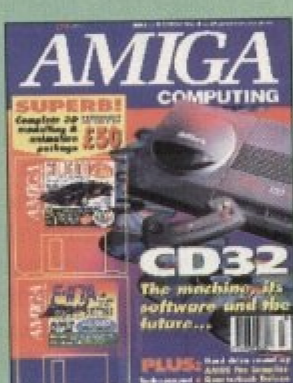
The latest three professional video add-ons reviewed - A Video Y/C, IV24 v2.0 and Videopilot 330. Survival guide to printers.
Reviews of Ami-Back, Ami Tools and Kid Pix.
ON DISK: CineMorph jr VALUED AT £50

SEPTEMBER



Caligari 24 reviewed. Survival guide to hard drives.
Reviews of Phone Pak, VLab Y/C and Alfa Colour Hand Scanner.
ON DISK: Image FX demo

OCTOBER



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Hard drive round-up. Reviews of DSS8+, Technosound Turbo 2, Brilliance, AMOS Pro Compiler and Quarterback Tools Deluxe.
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Thinking big

Phil South decides that big is beautiful and goes about achieving over-sized scrolling with Amos



I was pondering the other day the possibility of doing something with big scroll texts which didn't use up a huge quantity of code and didn't rely on really hard coding techniques or large amounts of memory bank space.

I delved around in my archives and found a really neat routine to do just that, using nothing more sinister than the much underused ZOOM command.

What is needed is a little routine which thinks big. Something which does a lot for a small amount of space and effort. The ZOOM command is a perfect choice, as it does one job remarkably well and with a great amount of flexibility.

You can zoom an area of the screen to the current screen or another screen completely automatically and virtually instantly. This speed and flexibility will stand us in good stead for the task ahead.

The first step towards a big scroll text is to embed your text into a alphanumeric variable, like L$:

```
L$=" Amos Almanac... your one true choice for Amos Excellence...     "
L$=L$+" Amos is the best thing since sliced bread..."
```

Initialise the L variable to 0, and open a screen:

```
L=0
Screen Open 1,416,256,4,Lowres
```

Then you define a scroll, from 0,0 to 416,256:

```
Def Scroll 1,0,0 To 416,256,-58,0
```

Next clear up the screen furniture like cursor and flash:

```
Curs Off : Flash Off
```

then you're into the main loop:

```
Do
_SCROLL
If Mouse Key=1 Then Exit
Loop
```

The loop does the loop until a mouse key press equals 1, or left mouse button, and each time it activates the _SCROLL procedure.

The procedure as you can see does a very simple job, printing up the text a letter at a time on one screen and zooming it and scrolling it on the next.

The procedure is like so:

```
Procedure _SCROLL
   Shared L$,L
   If L=Len(L$) Then L=0
```

The variables are shared so that they can be used by the rest of the program, and L is tested to see if it should reset:

```
Screen 0 : Locate 0,0 : Print Mid$(L$,L+1,1)
Zoom 0,0,0,8,8 To 1,352,0,400,256
```

The Zoom takes the letter from screen 0 and zooms it up big onto screen 1, then performs the defined scroll. Simple and very effective:

```
Screen 1
Scroll 1
```

A bit of simple incrementing and finishing the proc completes the loop:

```
Inc L
End Proc
```

The program is excellently simple and compact, which if the big text routine isn't the major part of the program is of paramount.

Moving on, most movies these days have computer displays in them, for whatever reason, mostly just to make the films look modern and up to date.

Amos is an ideal program for generating displays which don't actually do anything, due to its ability to create graphics and sounds in real time which would take hours under normal circumstances. Take for example this little radar display:

```
Degree
Screen Open 0,320,256,2,Lowres : Curs Off :
Colour 1,$F0 : Colour 0,0 : Ink 1 : Cls 0
```

First off the usual set-up guff, which almost every Amos programmer can do with their eyes closed. Then turn on Double Buffering and autoback to smooth things up:

```
Double Buffer : Autoback 0
```

Then you're ready for the main program loop. The program goes round and around:

```
Repeat
   For ANG=359 To 0 Step -3
```

If you want to go 360 degrees then a FOR/NEXT loop is a good way to ensure you get there. Next a few calculations to make sure the ends of your radar scan are on the edge of the circle:

```
XP=180*Sin(ANG)
YP=180*Cos(ANG)
```

Clear the screen and draw the line:

```
Cls
Draw 160,128 To 160+XP,128+YP
```

Now swap the screen and wait for a vertical blank. This means that the sweep of the radar is as flicker free as you can make it:

```
      Screen Swap : Wait Vbl
   Next
Until Mouse Key
```

Complete the loop and wait for the mouse key before you interrupt the cycle.

Write a program!

Here's an interesting one. It's a film about robots like Terminator or Hardware. Our hero makes it to the main computer to get a readout about the robots which are attacking the planet. OK write a program that the movie director could show on screen. Technical readouts, plans, vector graphics, it's up to you. Send your entry to the usual Amos Aspect address marked Robot Attack.

Write stuff

If you have an Amos question, then please write to Phil South, Amos Column, Amiga Computing, Europa House, Adlington Park, Macclesfield SK10 4NP.

Copy cats

Ben Pointer discusses how the printing process can alter the way you prepare your designs

After designing your stationery pack, the first tool you will want to reach for is your publishing software. But before you do that, let's jump forward to the printing process to see how two methods of reproduction can change the way you lay out and prepare the artwork for each piece of stationery.

A popular method of duplicating artwork is photocopying it. This has the advantage of being quick, as there are fewer steps involved in the process compared to that of artwork reproduced using a printing press. As well, you only have to order the amount of copies needed at any one time.

But there can be limitations too. Many copyshops can only produce black and white copies, so if you require colour you may need to have the stationery reproduced on a printing press.

Or you could go to a copyshop that has a spot colour copier. These work the same way as a normal copier except that the machine is fitted with different coloured toners which can be selected to replace the normal colour, black. In this way, any elements on the page being copied will be printed in the chosen colour.

If your copyshop has a copier like this, find out what colours their machines are capable of so that you can go back to your design and see how these can be worked into the layout.

The drawback to adding colour to your designs like this is that you will be charged for each time a copy of the stationery needs to go back through the copier. You will also need to produce more artwork – one piece for each colour used – so check with your copyshop before laying out each piece of stationery.

Another limitation to look out for is the quality of photocopying, which varies between copyshops, so try and get some examples before having many hundreds run off. For letterheads and compliment slips you might like to try a woven paper like Conqueror, which has a very professional feel about it.

The other method of reproducing your stationery is on a printing press. This is suitable for long runs of 500 or more, and where higher quality is required. Your business card will need to be produced like this if your copyshop cannot photocopy onto card.

One thing both these methods of printing have in common is how they affect the size of the original artwork. You may, for example, have settled on a page size of A4 for the letterhead. Providing you have margins around the edges of the page that shouldn't be a problem when it comes time to create the artwork or have it reproduced.

But if you were to run all the elements on the page up to the edge of the paper you would need to output the page to a printer that can handle paper larger than A4 because an A4-only printer cannot print edge-to-edge due to hardware restrictions.

This means using an A3 printer, or check with your copyshop, who may be able to output your page to an A3 PostScript device.

One way to avoid having to use an A3 printer may be to use an A4 printer, but cut and paste the elements. If you do this, don't forget that even if you manage to run the elements to the edges on your page, a photocopier or a printing press will also have hardware limitations which may limit the area of an A4 page it can print on to.

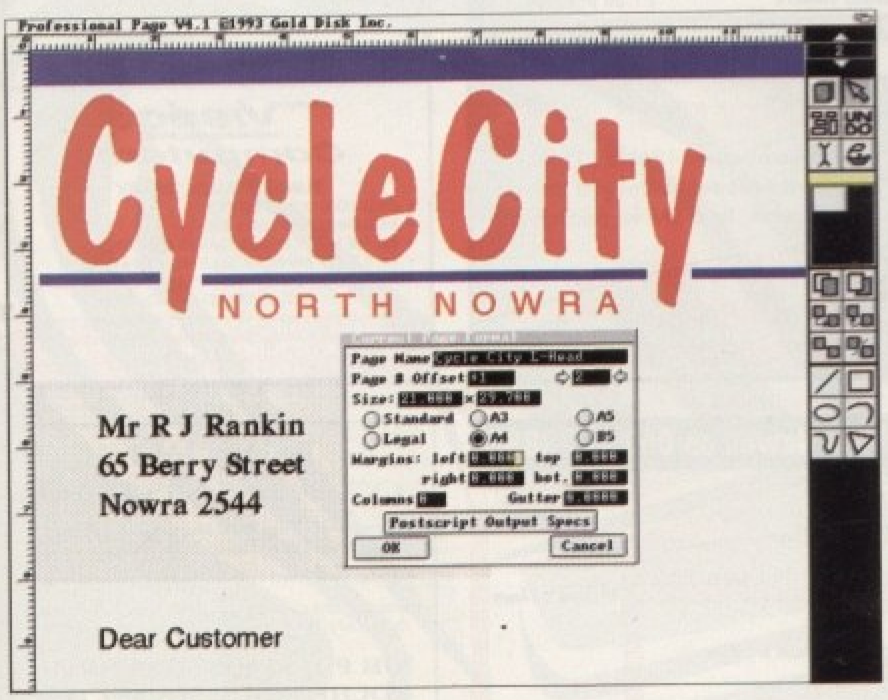


In these circumstances the page will once again need to be printed on to oversized paper. The reproduction process affects mostly the business card as you cannot lay out the cards on the page until you know what size card the copyshop uses to print on, and what size the cards will be after trimming.

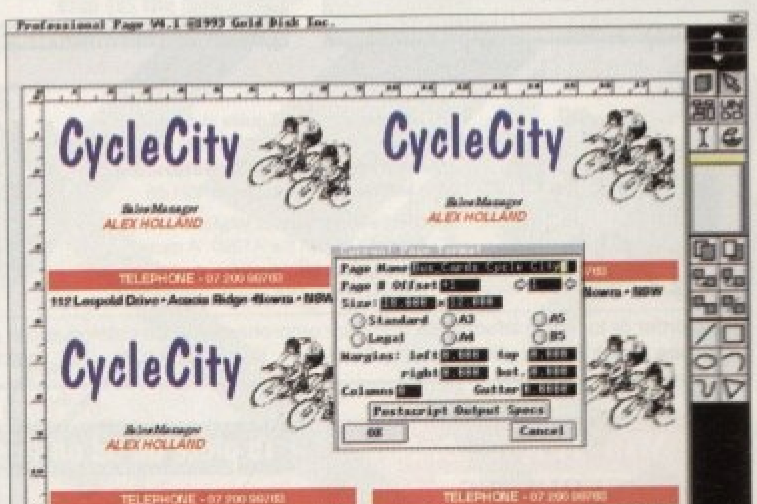
Once you know the answers to these two questions you will be able to work out how many cards you can fit on a single page.

Worth remembering is that some copyshops will be able to photocopy on to card, but make sure that card is around 230gms as card lighter than this will have an unprofessional feel to it.

So there you have it. Before booting up your publishing software think hard about how you want to lay out your designs and how those designs might affect the way it is printed. Go and ask your copyshop a lot of questions to make sure there won't be any problems with the reproduction process.



Elements that go all the way to the edge of the page run the danger of being cut off when printed. If printing to an A4 machine, leave a margin of around 12mm



Before you can design business cards you will need to find out from your copyshop what size card they will be using to print the cards onto so you know how big to make the page

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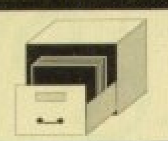
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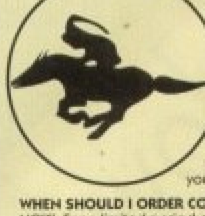
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One of the things most Amiga users need to do at one time or another is use files created on another computer. Ideally, they also want to use the same software which means investing twice for the same product, once for each platform.

However this route is not always possible because developers of more serious software often neglect the Amiga market in favour of the bigger profit margins available from the PC and its clones.

Fortunately the Amiga is a jack of all trades and apart from being able to read, write and format disks from other home computers, it is also able to emulate them.

There are two ways in which this can be achieved – by hardware add-ons which turn the Amiga into a hybrid machine, or the soft option which uses cunning programming to perform the same task. Obviously, having specialist hardware will result in faster, and sometimes more accurate emulation but software emulation will not invalidate your warrantee and is an ideal solution on accelerated machines.

PC Task by Chris Hames takes the form of the latter type of emulator and is compatible with all Amigas running Kickstart/Workbench 1.2 or higher with at least 1/2 meg of RAM, although some features do need a minimum of 1 meg.

It will not turn your Amiga into an 80286 or 80386 IBM, but as long as the software you want to use will run on more humble machines, you should be able to run it via PC Task. In order to be as compatible with as many Amigas as possible, three different versions of the software are supplied.

These are tailored for the Motorola 68000 and 68020, the standard Amiga processors, plus the 68010 used in some accelerators. In order to use the emulator all that is required is to click on the appropriate icon for your particular Amiga. A configuration screen will appear so that the drives can be initialised to recognise the IBM disk format and the monitor mode and screen colours set. Additionally, the parallel and serial ports can be used either via the emulator or by the Amiga so they are also configurable.

PC Task allows two Amiga floppy drives to be used as PC drives. They are referred to as A: and B: and changing between them is performed just as on a PC by typing the device name. Hard disks are also catered for and it is possible to initialise the system from a hard drive partition as long as it is bootable. Because some versions of MS-DOS do not work on partitions that are larger than 32Mb, this is the largest recommended size.

The emulated graphic mode depends upon which graphics adaptor has been selected and ranges from MDA to VGA. MDA is a mono text-only adaptor and allows the text and background colours to be user-defined using the familiar Amiga slider type gadget. The default is CGA which has the highest compatibility because it is the most completely implemented adaptor.

EGA is essentially the same as a combination of MDA and CGA but has a few more graphics modes. The more modern VGA is also available, but only to users of AGA Amigas (ie Kickstart/Workbench 3).

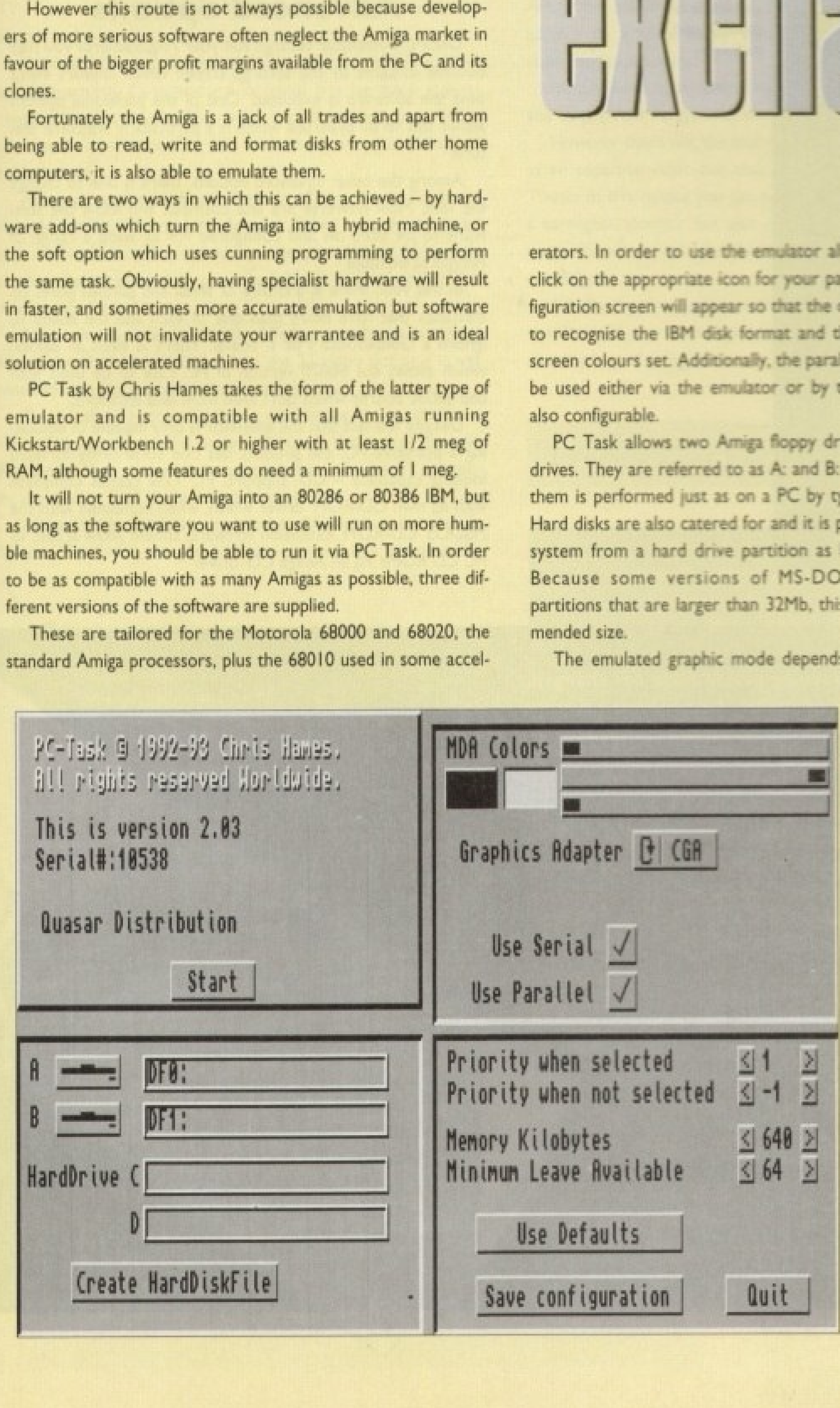
Once suitably defined, the settings may be saved to disk before initiating the emulator by clicking on the start button. MSDOS is not supplied but as the intended user should also have access to an IBM this is no great loss. MSDOS v5.0 or v3.3 is recommended and can easily be copied across from your PC. Instructions to produce a system disk are included, which will allow a handful of essential commands to be used. These are built into the emulator and include cd, dir, del copy and type plus date and cls.

Files may be transferred between Amiga and PC disks using the two supplied utility programs CopyToA and CopyToI. These are initially on the supplied Amiga format disk and must be copied to a PC format one before they can be accessed and executed by the emulator.

A script has been provided to perform this task and is executed by clicking on an Amiga icon. There is no reference to this in the user manual which may confuse users who launch straight into the emulator without looking through the contents of the disk.

IBM PCs are limited to 640k of RAM while most Amiga owners have one megabyte. In theory it would be possible to have the emulator loaded with access to 640k. However, PC Task looks for a contiguous block of chip or fast RAM which will not be available on Workbench/Kickstart 1.3 Amigas with a half meg expansion.

This is because chip and fast RAM are in separate locations. PC Task works with either type of memory and will choose the one with the largest amount. To gain full use of the emulator, a hardware modification may be made to obtain a megabyte of ➤



The PC Task configuration screen

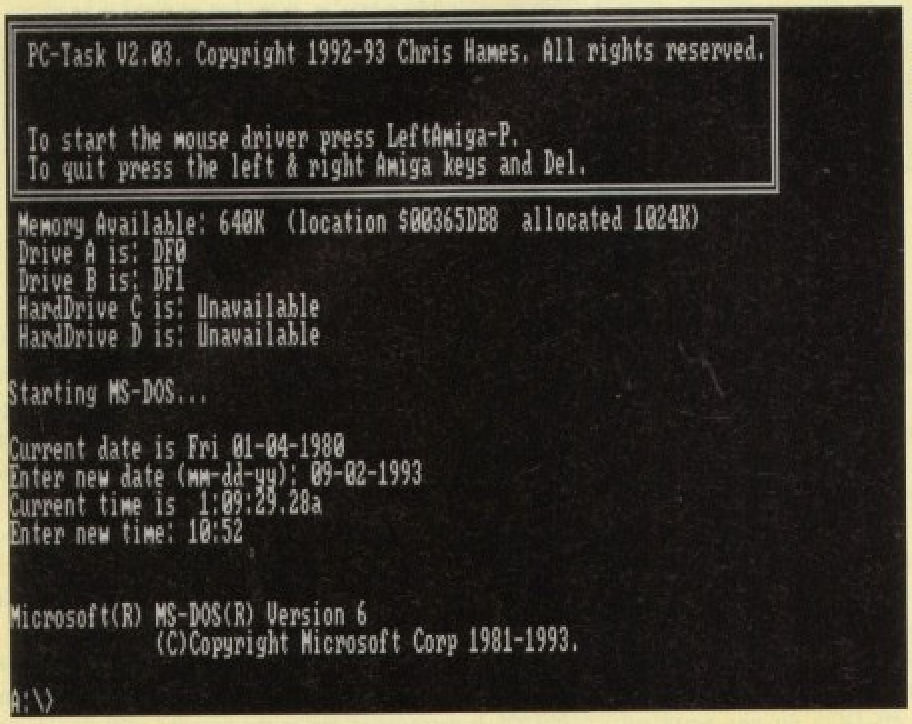
chip RAM. Alternatively, more fast RAM may be added which will have exactly the same result on the performance of the emulator.

PC Task does not take over control of the Amiga and is quite capable of multitasking. By default, it sets a priority for itself so that it gains as much processor time as possible. When it is not being used, the priority is changed so that it gains as little processor time as possible. This way, whichever task is being used, it will not significantly suffer due to processor sharing.

Because the emulator will only read disks that have the IBM format, to use the Amiga's hard drive takes a little bit of setting up. There are two ways that this can be done – the first is by far the easiest and involves creating a hard disk file.

Essentially, a large file of up to 32Mb is created from the configuration screen, the emulator booted and the file formatted.

The other method is more complicated and the manual recommends that only advanced users attempt it. This is because mistakes could easily result in the loss of data from the hard disk. Strangely, the manual does not recommend that a backup is made before attempting to create a hard disk partition.



Booting the emulator is speedy and painless

Presumably advanced users are supposed to realise that making a backup is a good idea and they don't need any prompting.

Although the emulator is limited to two hard drives at any given time, there is no reason why more cannot be created on systems with a large disk capacity or multiple drives. The two that are actually used are defined just before emulator startup. Because booting does not take very long it would be reasonably painless to exit emulation in order to switch drives.

As well as being run from Workbench, it is also possible to run PC Task from the Shell. Some configuration features are not available from the options screen and must be accessed by invoking the emulator with command line arguments or by adding tooltypes to the icon.

Advanced options

Once the emulator settings suit your requirements you may become irritated by the settings screen which appears every time the software is executed. One of the additional options allows this to be bypassed which is a particularly welcome feature.

Among the other advanced options, there is one to change the font. Most however are less cosmetic and allow the software to be used on and configured for as wide a range of Amigas as possible.

In this vein, there is a choice of serial and parallel ports on machines that have more than one of each and the ability to ignore a GoldenGate I or II board. There is even an option which allows the 68020 version of PC Task to be used with bad 68030 boards which can't read from odd locations.

Despite the fact that the emulator is only capable of emulating a primitive PC, the product has one surprisingly forward looking capability – CD support. PC Task comes complete with its own CD-ROM driver which, when combined with the MSDOS CD-ROM extension software, should allow access to PC CD ROMs via an Amiga CD drive.

MiniGen L500

Replacement PAL TV and video adaptor
Supplier: Lola Electronics
Phone: 0858 880182
Price: £49.95

For those who've been kicking around the Amiga scene for some time the accompanying picture of Lola's MiniGen may look more than a little familiar. This isn't exactly surprising as the basic design of MiniGen has remained pretty much the same for almost five years.

Although the look may be familiar the name may not as the original MiniGen was superseded early on by an almost identical unit from another supplier which profited from much better marketing and hence captured huge sales back when the Amiga video market was still young.

During the intervening period little has changed, with the exception of slightly better keying quality when using interlace. As for the design, the same story applies with only the most rudimentary genlocking controls providing three basic on/off keying states.

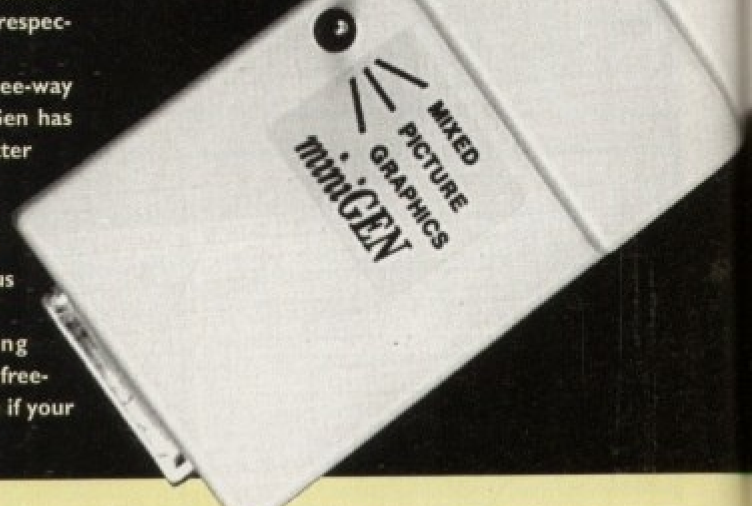
Connecting up follows the usual format with the MiniGen plugging directly into the 23 pin video-out on the rear of the machine. As for video signals, life couldn't be much simpler with just two phono connections handling the incoming and outgoing video respectively.

On the top of the unit awaits the single three-way toggle control. Unlike most genlocks the MiniGen has no dials or faders, in fact control is strictly a matter of flicking between mixed, picture or graphics.

Basically this means you can have the Amiga graphics keyed over the incoming video, the video on its own or just the Amiga graphics minus the video.

As you might expect this all or nothing approach doesn't exactly lend itself to creative freedom, but for £49.95 it's still worth consideration if your

Control of the MiniGEN is simple using the three-way toggle



Shop Window

Lola L520 Adaptor

Replacement PAL TV and video adaptor
Supplier: Lola Electronics
Phone: 0858 880182
Price: £29.95

Although the standard Commodore adaptor is a pretty hard-wearing beast, accidents do happen, and if the aforesaid add-on happens to be your only window on your Amiga – courtesy of a TV – your computing exploits can come to a sudden and very abrupt end.

Worse still, since the demise of the A500 finding a replacement Commodore original has become almost impossible. Enter Lola Electronics, a company only too willing to step in and save the day with their very on designer replacement.

Although swathed in black, the Lola offering is very similar to the old vanilla Commodore Adaptor, being roughly the same size and with almost identical input/output options. Why Lola choose black rather than a subtle beige is a mystery, but if it works, who cares?

Although the casing is slightly different installation is almost identical with the unit slipping into the 23 video slot as if it was made for the job – which funnily enough it was...

Once safely entrenched you can move on to the twin video/TV outputs and the single audio-in on the rear of the unit. For those who may be a tad confused as to why there's a audio-in, the answer is all to do with television.

Alongside the audio-in sits another RCA/phono connection labelled TV CH36. As you probably guessed this provides the RF-out suitable for connection direct a TV via a phono to RF cable – which comes as part of the overall Adaptor package.

However in order to get the Amiga audio as well as the video combined within the RF signal yet another Y phono connector is required – again supplied with the unit – which takes the audio from the left and right phono sockets on the rear of the Amiga and combines them via the audio in on the adaptor to produce an RF signal complete with a combined mono audio.

All that's left is to select channel 36 on the TV and up pops the Amiga in all its monophonic glory.

However that's not the end of the adaptor story as an separate video-out also lurks on the rear. Thanks to this output you can not only use a TV as a surrogate monitor but also record the Amiga's output on video – without the need for an encoder or genlock.

Admittedly the quality isn't exactly broadcast but if you want to put your animations or artwork on tape there's no cheaper way of doing it.



The Lola 520 – plug in and go

HyperCache Professional

Hypercache Professional
Supplier: Meridian Distribution
Phone: 081-543 3500
Price: £46.95

Any product that claims to accelerate AmigaDOS storage devices by as much as 2,200 per cent has to be worth a look, particularly when it's done with software! Hypercache professional makes just such a claim but before putting it through its paces, let's see what it actually is and does.

To quote from the manual, "Hypercache Professional is an N-way associative look-ahead cache system for any block-accessible device". Essentially, what this means is that it is a system that reads data from a backing store (whether that be disk, a SCSI tape system or CD-ROM) in anticipation of a request for that data by any program.

The technique that it employs is usually found on mini and mainframe computers to implement virtual memory, and it is unlike that any other such program is currently available on the Amiga.

On such machines, programs like this are of little concern to users for the simple reason that they form a part of the operating system. They are transparent to the end user – their presence is not apparent and system peformance is often attributed solely to the hardware.

To test the software, we used the default settings on an A500 Plus, accelerated A1500 and A4000/040 and measured performance with the Diskspeed utility.

Surprisingly, both the 86000 and 86030 versions of HyperCache caused the dreaded guru to appear when the hard drive was accessed. However on the A500 Plus and A40040 the program did run so here are a few results:

Testing directory manipulation speed on A500 Plus

	Without HyperCache	With HyperCache
File Create:	16 files/sec	19 files/sec
File Open:	29 files/sec	42 files/sec
Directory Scan:	95 files/sec	182 files/sec
File Delete:	44 files/sec	69 files/sec
Seek/Read:	43 seeks/sec	141 seeks/sec

Testing directory manipulation speed on A4000/040

	Without Hypercache	With HyperCache
File Create:	31 files/sec	39 files/sec
File Open:	69 files/sec	262 files/sec
Directory Scan:	350 files/sec	1042 files/sec
File Delete:	206 files/sec	348 files/sec
Seek/Read:	73 seeks/sec	870 seeks/sec

Based on this information we suspect that the claimed increase of 2,200% per cent is either a theoretical figure or occurs under special conditions. Having said that, there is a significant increase in reading from hard drives and so HyperCache Professional could prove to be a useful utility for users with a spare half meg of RAM.



only require the basics and aren't too bothered about quality.

Although basic as far as control is concerned the actual keying quality is acceptable for home use. Obviously with the lack of subtlety MiniGen is perhaps at its best when used in concert with a titler such as BAS2 from Alternative Image or perhaps Scala HVT – both of which retail around the £50 mark.

Either program can provide various wipes and scrolls adding a certain amount of glamour which hopefully should disguise the rather rudimentary off/on approach of the genlock.

If you don't take your videography too seriously it's a reasonable buy, but a bit too basic for anything other than family footage. If however you fancy a bit more control the Rocgen from Roctec Electronics retails for an additional £20 but does boast a fader and slightly better image quality and keying.

HARD TIMES

This month the Market spotlight falls on perhaps the most popular Amiga peripheral – the essential external floppy

Roclite

If speed and style are what you're looking for from a floppy, the Roclite is the drive of your dreams. The unit itself is by far the smallest, slimmest and fastest drive we had on test.

At roughly twice the speed of the standard Commodore internal it's pretty impressive – and barely makes a sound in the process.

Unlike some of the opposition, the Roclite comes with both anti-click and anti-virus which when combined with its pure elegance and speed make it a very attractive buy.

If you're looking for a stylish slim-line drive that can outpace the opposition but still retails at a very respectable price, the Roclite is the answer.

Price: £59
Supplier: Silica Systems
Tel: 081-309 1111

Cumana

Cumana drives have been around as long the Amiga and to their credit I'd be surprised if the very first unit out of the factory isn't still going strong.

Sturdy, reliable, boring, noisy – that's the Cumana. In fact, we're talking the computing equivalent of the Volkswagen Beetle.

If you're not after the whistles and bells of more modern drives but simply want an external that will last longer than you will, the Cumana is the perfect choice.

Price: £49.95
Supplier: Cumana Limited
Tel: 0483 503121

Power PC880B

Now here's a drive that's fit to burst with additional features. Aside from working as a standard floppy, the unit also boasts an anti-virus mode which immediately write protects all the your floppies by completely disabling the write-to option.

The next feature is a slightly dubious addition which takes the form of a software/hardware copying system entitled Blitz Copy.

As you might have guessed, this isn't meant for normal AmigaDOS copying tasks and that's about a far as we should go with this particular line of thought.

Although rather long, the drive still remains surprisingly thin considering the amount of hardware stuffed inside.

As an all purpose drive the PC8808 has to be one of the best buys on the market especially when its obvious flexibility is combined with a very reasonable asking price. Available in both black and vanilla.

Price: £60
Supplier: Power Computing
Tel: 0234 843388

Zydec

If you're repelled by the designer label look the Zydec offering provides the minimalist styling and space conscious design that any environmental-friendly Amiga user would happily swap his or her 2CV for.

Although small and amazingly quiet considering the lack of any anti-click hardware, the Zydec does have a few faults in comparison to its more bulky and feature packed counterparts.

Because of the extremely slim design, Zydec have been forced to add vents on the top and to the rear of the drive. Although this may seem a perfectly acceptable design, a coffee spill could soon change your mind.

If you're looking for a basic but efficient drive the Zydec is fine, but considering the extra features on many of the opposition's models I must admit it wouldn't be my first choice unless desk space was extremely tight.

Price: £52.99 incl delivery
Supplier: Evesham Micros
Tel: 0386 765500

Power Dual Drive

As the name suggests, this offering from Power Computing is a twin drive comprising two PC880B drives in one amazingly small case. Like Power's single drive, both units offer the anti-click, anti-virus and Blitz Copy.

The drives themselves are totally independent as far as the Amiga is concerned and like all the disks in the round-up, through ports and on/off switches are provided.

Unlike all the other drives, the Dual Drive also boasts a separate power supply – an extremely useful addition if your machine is already heavily laden with additional hardware.

It's worth stressing that the anti-virus option does not actually check for a viral presence. Both the single and dual drives simply disable the machine's ability to write information to disk.

If you're in the market for a twin external system the Dual Drive offers a compact, economical and feature-packed answer that avoids the power problems often encountered on heavily expanded systems.

Price: £125
Supplier: Power Computing
Tel: 0234 843388

Power PC881 internal

With the everyday abuse the average internal has to endure, replacement of your original drive is often essential – especially if you use a lot of commercial games which often drive the long-suffering internal to destruction, courtesy of sometimes brutal copy protection.

If you find yourself in the unfortunate position of owning a dicky internal, Power Computing offer replacement kits for both the A500 and A2000 which are simplicity itself to install and use the same basic drive unit employed in the external models.

Price: £45
Supplier: Power Computing
Tel: 0234 843388

Power XL Drive

Last but not least comes a pinnacle of external engineering, namely the Power XL high density drive. Once installed along with a small patch program, the XL allows any Amiga to share the 1.76Mb storage available only to the A4000.

In addition to high density use, the drive can also read standard 880k disks automatically. Better still, it will read and write PC disks whether they are high (1.44Mb) or double (720k) density.

Although rather pricey when initially released, the drive has had a dramatic price cut and now ships with ten high density disks for a very reasonable £99.95.

If you take your computing seriously and regularly need to transport large files, the XL is a real bargain.

Price: £99.95
Supplier: Power Computing
Tel: 0234 843388

Locator

Your at-a-glance guide to shopping through the pages of AC. All our advertisers, all their products, and all in an easy to find format. Your Amiga Market Locator makes finding that bargain infinitely easier.

	AMIGAS						PRINTERS				PERIPHERALS									SOFTWARE											MISC		
COMPANY	A500	A600	A1500	A2000	A3000	A4000	Laser	Dot Matrix	Bubblejet	Colour	RAM	Hard Drives	Floppy drives	Genlocks	Scanners	Digitisers	Samplers	Modems	Monitors	Wordprocessors	Databases	Spreadsheets	DTP	Ray tracing	Graphics	Music	Shareware/PD	Games	Education	Programming	Consumables	Repairs	Training/tutorials
1st Computer Centre	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
ACS																																●	
Arnor																				●	●												
Ashcom											●	●																			●		
Battleaxe PD	●	●			●																						●						
Bitcon Devices											●																						
Database Direct																				●	●	●	●							●		●	
Delta Pi	●	●	●					●	●	●		●																			●		
Deltrax P.D.																											●						
Digita International																							●	●	●	●							
Eagle Software																												●					
EM Computergraphic																							●				●						
Europress Software																					●	●	●					●	●				
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Gasteiner											●	●	●		●																		
Gordon Harwood	●	●	●	●		●	●	●	●	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●	●				●			
Hawkwell Electronics																																●	
HiSoft																																	
Hobbyte	●	●	●	●	●	●		●	●	●	●	●	●	●	●	●																	
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Ladbroke	●	●	●	●	●	●		●	●	●	●	●	●	●	●				●	●	●	●									●		
Mailbyte	●	●	●					●	●	●	●	●	●	●	●	●			●												●		
Marcam															●				●	●	●	●	●					●	●		●		
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Rombo																●											●			●			
Selectafont Company																							●				●				●		
Silica Systems	●	●	●	●	●	●		●	●	●	●	●	●	●	●														●				
Systec P.D.																											●			●			
Virus Free PD																											●						
White Knight Technology	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●				●	●	●						●		

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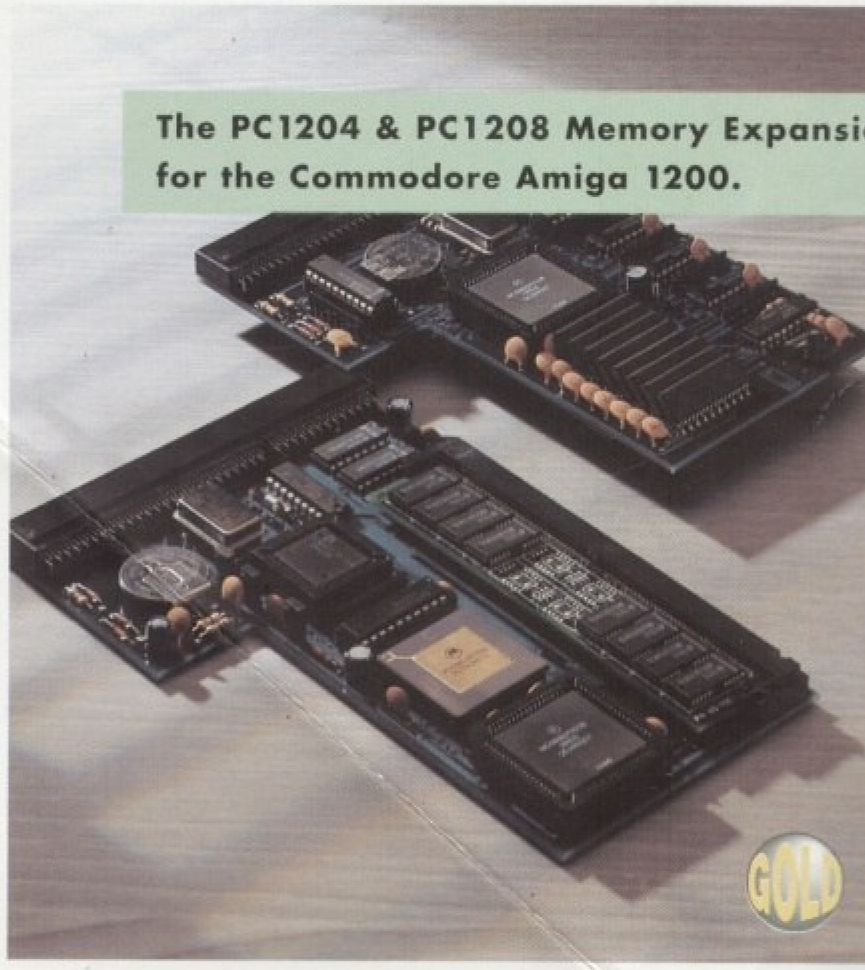
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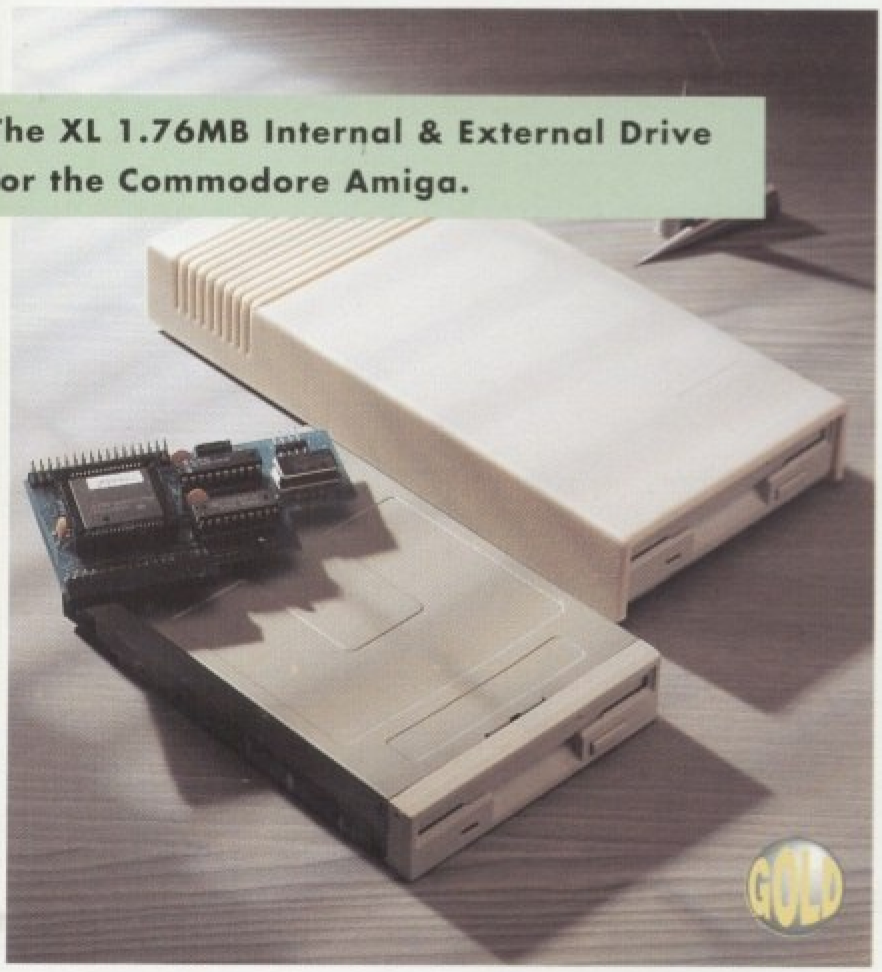
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